

## Southwest Forest Pest Fight Mapped

### Tent Caterpillar Campaigns Planned

FT. COLLINS, COLO.—Two campaigns against the Great Basin tent caterpillar will be launched in Colorado, New Mexico and Arizona this summer by government insect experts. They plan to spray the caterpillars from airplanes with poison and a killer virus.

The tent caterpillar is the larval stage of the insect which later becomes the aspen moth. The "tent" part of the name is inspired by the large cocoon which the insect builds in tree branches. When infestations are heavy, caterpillars chew up every leaf in reach. The defoliation doesn't itself kill the tree, but it can so weaken the tree that it dies.

Officials of the Rocky Mountain Forest and Range Experiment Station at Ft. Collins, an agency of the U.S. Forest Service, estimate that the insects are a serious problem in 132,000 acres of southern Colorado and 250,000 acres of New Mexico.

One of the worst infestations, according to C. L. Terrell, Colorado state forester, blankets La Veta Pass, west of Walsenburg, Colo., and extends south into New Mexico.

The insects not only damage thousands of trees but also discourage tourists and picnickers in mountain forest areas. Towns in southern Colorado are concerned also about the number of caterpillars in their water supplies.

The caterpillars get so thick on the highway sometimes that cars have been known to slide off the road, Mr. Terrell says.

The La Veta epidemic has continued for eight years, according to the

(Turn to FOREST INSECTS, page 21)

## Economics of Range Fertilization Stressed at California Meeting

By LAWRENCE A. LONG  
Editor of Croplife

SAN LUIS OBISPO, CAL.—A strong emphasis on the economics of range fertilization featured the 6th annual California Fertilizer Conference held April 14-15 on the campus of California State Polytechnic College here. Some 200 persons were in attendance.

Sidney H. Bierly, San Marino, Cal. general manager of the California Fertilizer Assn., said the attendance would have been a third larger had not earlier rains and subsequent fine weather made it necessary for many

in the trade to remain on their jobs handling fertilizer deliveries.

A bus tour of range fertilization demonstrations was the feature of the afternoon on April 14, when the group visited test plots in San Luis Obispo County. Here Russell Helphenstine, farm adviser, explained to the group that the plots in the demonstration, totaling 221 acres, had shown remarkable responses to fertilizer and that heifers grazing on the treated acres gained far more weight than did the animals on the check plot.

"Beef production per acre was increased from 73 up to nearly 300

lb. an acre," Mr. Helphenstine said. An evaluation of these results shows that these additional pounds of beef were achieved for a fertilizer cost, including application, of \$14.81. This extra beef per acre was then produced at a fertilizer cost of only 6½¢ lb., Mr. Helphenstine reported.

Earlier in the opening day, a number of speakers had appeared before the group in a session under the chairmanship of Earl R. Mog, Stockton, Cal. William G. Hewitt, Pacific Guano Co., Berkeley, and also president of the association, welcomed the group, and Julian A. McPhee, president of the host college, added his words of welcome.

Dr. Daniel G. Aldrich, Jr., chairman of the department of soils and plant nutrition, University of California, Davis, described some problems of soil compaction as experienced in the state.

Results of range fertilizer demonstrations were described by Dr. Logan Carter, department of soils, California State Polytechnic College. He said that the advantages of fertilization of rangelands lie mostly in their earlier growth which permits from a month to six weeks longer feeding for livestock. In addition, he said, better dry feed is left on the field after the animals are through grazing, and fertilizing results in better composition of annual grasses and makes possible the support of more animals to the acre.

(Turn to CONFERENCE, page 20)

## Control Official Describes Growing Problems of Registering Chemicals

SAN LUIS OBISPO, CAL.—Robert Z. Rollins, chief of the Bureau of Chemistry, California Department of Agriculture, described the growing complexities of classifying and registering agricultural chemicals during the California Fertilizer Conference here.

The problems, he said, stem from not only mixtures of pesticides and fertilizers, wherein it is necessary for a registrant to pay fees under both laws, but also from the standpoint of classifying materials which may have dual uses both as a plant nutrient and as a pesticide of some sort.

Since the war, he said, new materials have come into being which have vastly enlarged the old concept of N-P-K, plus a few other elements used in fertilizer mixtures. These new materials, he said, affect soils, plants and crops in ways undreamed of in

earlier years. "The concept of what constitutes fertilizer and what constitutes a pesticide has expanded with the developments in agricultural chemistry since the war," Mr. Rollins said. "The two fields have grown together and overlapped to such an extent that it is sometimes difficult to classify some of the new products that appear on the scene."

Pesticides, he pointed out, formerly were used to kill only a few bugs, but now they are applied like fertilizers in many cases. This makes it necessary to register some products under two laws.

How does one classify dual purpose materials, Mr. Rollins asked. Calcium cyanamide and lime sulfur solutions, he said, are used as pesticides and also for treatment of alkaline soils. Blue stone was used as a pesticide for bordeaux and also applied to the soil as a plant nutrient to supply copper. Large amounts of elemental sulfur were applied to plants to kill pests and at the same time similar amounts of the same material were applied to soil to reduce alkalinity. Mr. Rollins said.

Some fertilizer materials have indirect pesticidal value, too. As an ex-

(Turn to CONTROL OFFICIAL, page 8)

## Vietnam Awarded ICA Authorizations

WASHINGTON—International Cooperation Administration has issued nearly \$1½ million in fertilizer authorizations for Vietnam. Included are authorizations of \$525,000 for phosphatic fertilizers, \$500,000 for nitrogenous materials and \$200,000 for potash fertilizers. The phosphatic authorization is broken down into \$500,000 for phosphatic materials and \$25,000 for prepared phosphate mixtures.

Contract period for all authorizations is March 31 to July 31. Terminal delivery date is Oct. 31 and source for all is world wide.

## Sales Down This Spring in Southwest, Retailers Report

By JESS F. BLAIR  
Croplife Special Writer

BIG SPRING, TEXAS—A survey of farm chemical dealers in West Texas and parts of New Mexico reveals that fertilizer sales may be down this year. Several reasons are given for this decline, but the two main ones are a lack of financing and the cold, wet winter that prevented field application.

One dealer, Van Dell Ball, of Lamesa, Texas, said that on this date last year he had sold 42 transport truck loads of fertilizer and a total of about 600,000 lb. for the year. This compares with only about a dozen loads thus far in 1958.

"I believe the inclement weather was the main drawback," he said,

"and we'll get much of the business yet. However, farmers had a bad year in 1957, particularly the irrigation farmers who were the biggest losers."

Another dealer, Gerald Hanson, of Stanton, credits last year's crop losses for declining sales. "We had several dryland farmers planning to use fertilizer this year," he said, "but most of them were just talking about it. They didn't have much profit left from their cotton last year."

In the Trans-Pecos areas of West Texas where rain seldom falls, the cotton went through last fall without damaging weather. Producers came out ahead financially, yet they, too, are carefully counting the costs before putting down fertilizer.

A spokesman for Western Cotton-

(Turn to SPRING SALES, page 8)

## Western Fertilizer, Central Farmers Cooperatives to Merge

CHICAGO—Members of the Western Fertilizer Assn. have voted to consolidate with Central Farmers Fertilizer Co. Central Farmers, which is owned by 16 Midwest regional cooperatives, is outlet for the entire production of St. Paul Ammonia Products Co., St. Paul, Minn. Western Fertilizer is owned by eight cooperatives in the Pacific Northwest.

Both cooperatives own extensive phosphate beds in Idaho. Central Farmers now is building a \$15 million phosphate processing plant at Georgetown, Idaho. Holdings of Western Fertilizer are estimated at 100 million tons.

## Inside You'll Find

Over the Counter .....	9
What's New .....	10
What's Been Happening .....	12
Farm Service Data .....	14
Oscar & Pat .....	15
Weed of the Week .....	16
Editorials .....	22
Meeting Memos .....	23
Index of Advertisers .....	23



## Changes in South Carolina Regulations Effective July 1

CLEMSON, S.C.—The South Carolina Department of Fertilizer Inspection and Analysis is reminding fertilizer firms of changes in South Carolina grade regulations which will become effective next July 1. These changes are:

The minimum grade for the 1-3-3 ratio will be 4-12-12 with the exception of the 3-9-9 grade branded and sold exclusively as a tobacco fertilizer.

The maximum chlorine guarantee in fertilizers branded for tobacco, side dresser, shall not exceed 5%; tobacco, general crop, shall not exceed 3%, and fertilizers branded for tobacco, plant beds, shall not exceed 1%.

Registrants attaching a tag or label to commercial fertilizer, showing any material used as a source of nitrogen, phosphoric acid or potash

will be required to show the entire open formula, namely the pounds per 100 lb. and analysis of each, used in compounding the fertilizer mixture. This is in compliance with Section 4-D of the South Carolina Fertilizer Law.

The 2-3-1 ratio, minimum analysis grade 6-9-3 will be deleted.

The 4-4-1 ratio, minimum analysis grade 20-20-5 for use principally as a fish pond fertilizer will be added to the approved list.

A reminder also has been given that effective July 1, 1959 the 2-5-3 and 1-2-1 ratios, minimum analysis grades 4-10-6 and 5-10-5 respectively, will be deleted.

### Malathion Cleared for Use on Stored Grain

NEW YORK—Malathion has been cleared by the Federal Food and Drug Administration for direct application to stored grain, according to American Cyanamid Co., manufacturer of the insecticide.

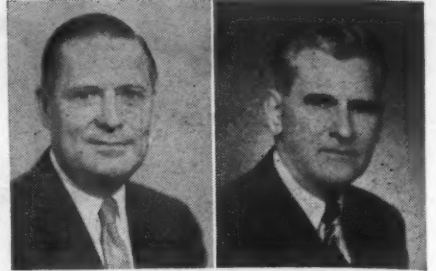
### Toxaphene Gets Tolerance For Use on Small Grain

WILMINGTON, DEL.—The Food and Drug Administration has established a tolerance of five parts per million of toxaphene on barley, oats, rice, rye and wheat, Hercules Powder Co. has announced.

The label approval issued by the U.S. Department of Agriculture for both toxaphene dusts and sprays states that toxaphene formulations may be applied up to within one week from harvest on wheat, rye and oats, and up to within two weeks from harvest on barley and rice. Toxaphene is the only chlorinated hydrocarbon insecticide recommended for armyworm control which can be used this close to harvest, Hercules said.

### SPRAYING STARTED

LEWISTON, IDAHO—Central Idaho farmers have already started aerial spraying of weeds. Planes have started spraying redroot.



William N. Williams Jackson V. Vernon

### William N. Williams, Jackson V. Vernon in New FMC Executive Posts

NEW YORK—Food Machinery and Chemical Corp. has appointed William N. Williams and Jackson V. Vernon as new members of its chemical divisions executive committee, it was announced by Dr. Carl F. Prutton, executive vice president.

Mr. Williams will have functional responsibility for engineering and manufacturing in FMC's chemical divisions, moving up from his former position as manager of the Westvaco mineral products division. Mr. Vernon moves up from his previous position as manager of the Niagara chemical division, and will have functional responsibility for marketing and distribution in FMC's chemical divisions.

Mr. Williams has been associated with Westvaco and its predecessor companies for over 25 years. Before becoming division manager, he had been vice president in charge of production. Earlier he had been general manager of the division's western operations.

Mr. Vernon became president of Niagara chemical division in 1952, after holding a succession of sales posts. He had previously been vice president and sales manager and before that served as assistant sales manager and advertising manager. In conjunction with his sales efforts, he also specialized in developing Niagara's distribution and marketing channels. Mr. Vernon is president of National Agricultural Chemicals Assn.

Replacing Mr. Williams as manager of Westvaco mineral products division is Raymond F. Moran, manager of the Newark, Cal. plant. Stuart H. Bear has been appointed manager of Niagara chemical division.

### Dates Set for Alabama Fertilizer Conference

AUBURN, ALA.—The annual conference held for the fertilizer industry by the Alabama Polytechnic Institute Experiment Station has been scheduled for July 29-30. It will begin July 29 at the Black Belt Substation near Marion Junction and will continue July 30 at the Prattville Experiment Field.

### Funeral Services for Edwin S. Valliant, Sr.

CENTERVILLE, MD.—Funeral services were held here recently for Edwin S. Valliant, Sr., president of E. S. Valliant & Sons, Inc. Mr. Valliant, one of the fertilizer industry pioneers, was also chairman of the board of the Valliant Fertilizer Co. and Milford Fertilizer Co.

### Crag Fungicide Available Through Miller Chemical

NEW YORK—Union Carbide Chemicals Co., Division of Union Carbide Corp., has licensed Miller Chemical and Fertilizer Corp., Baltimore, to manufacture and market fungicide 658, formerly sold by Carbide as Crag fungicide 658.

Miller Chemical will sell the finished product to vegetable, fruit, and peanut growers through established distribution channels, according to Carbide. The Miller brand fungicide will be available to farmers this month.

## "My Customers prefer Phillips 66 Ammonium Nitrate"—Marvin Blair, King City Elevator, King City, Missouri



Marvin Blair (left) is a successful fertilizer dealer, serving farmers in Gentry and De Kalb counties in Missouri.



**Proof of Performance:** Users of new Phillips 66 Ammonium Nitrate find it easier to store and spread . . . the result of an exclusive Phillips 66 process that gives hard, dry and uniformly round prills that prevent caking and clogging in the applicator.

**Mr. Blair says:** "As a mixed fertilizer dealer selling supplemental nitrogen, I'm sold on the new uniform quality, storability and spreadability of the new Phillips 66 Ammonium Nitrate. My customers prefer it."

**The outstanding performance** of new free flowing Phillips 66 Ammonium Nitrate is winning new customers for other dealers, too. Their farm customers have discovered that the uniformly round, hard and dry prills provide free flowing application . . . no clogging or caking . . . for more uniform crop response.

**Dealers get other extras, too,** when they handle Phillips 66 Ammonium Nitrate. Consistent, convincing advertising of Phillips 66 Ammonium Nitrate in leading farm papers, personal service from Phillips 66 field men, and prompt deliveries are included in the profitable benefits of selling Phillips 66 Ammonium Nitrate. Order your supply of Phillips 66 Ammonium Nitrate today.



## PHILLIPS PETROLEUM COMPANY

Phillips Chemical Company, a Subsidiary, Bartlesville, Oklahoma

### SALES OFFICES:

AMARILLO, TEX.—First Nat'l Bank Bldg.  
ATLANTA, GA.—1428 West Peachtree Street, N.W.  
Station "C" P. O. Box 7313  
BARTLESVILLE, OKLA.—Adams Bldg.  
CHICAGO, ILL.—7 South Dearborn St.  
DENVER, COLO.—1375 Kearney St.  
DES MOINES, IOWA—6th Floor, Hubbell Bldg.

HOUSTON, TEX.—6910 Fannin Street  
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.  
KANSAS CITY, MO.—500 West 39th St.  
MINNEAPOLIS, MINN.—212 Sixth St. South  
NEW YORK, N.Y.—80 Broadway  
OMAHA, NEB.—3212 Dodge St.  
PASADENA, CALIF.—317 North Lake Ave.

RALEIGH, N.C.—401 Oberlin Road  
SALT LAKE CITY, UTAH—68 South Main  
SPOKANE, WASH.—521 East Sprague  
ST. LOUIS, MO.—4251 Lindell Blvd.  
TAMPA, FLA.—3737 Neptune St.  
TULSA, OKLA.—1708 Ulico Square  
WICHITA, KAN.—501 KFH Building



## Progress Report

### POTASH COMPANY OF AMERICA, LTD.

Our Canadian shaft is almost complete. The most difficult ground is behind us. We expect completion June, 1958. Depth will be over 3,000 feet.

Meanwhile our Carlsbad Plant can serve your entire POTASH requirements with the very best material.

New 60% Standard Muriate  
New 60% Special Granular Muriate  
New 60% Coarse Granular Muriate  
Sulphate of Potash  
Chemical Muriate — 99.9% KCL  
minimum

Quick Service—High Quality  
Phone, write, telex, or wire us  
Phone STerling 3-4990, Washington  
TWX No.—WA-331



### POTASH COMPANY OF AMERICA CARLSBAD, NEW MEXICO.

General Sales Office . . . 1625 Eye Street, N.W., Washington, D.C.  
Midwestern Sales Office . . . First National Bank Bldg., Peoria, Ill.  
Southern Sales Office . . . Candler Building, Atlanta, Ga.



## INSECT AND PLANT DISEASE NOTES

### Orchard Insects

#### At Work in Indiana

VINCENNES, IND. (April 8-15)—Apple aphids are readily found feeding on the buds of apple. European red mites have not started to hatch. Red-banded leaf roller adults are active and started laying eggs sometime prior to April 14.

Codling moth are not pupating, to date. Tarnished plant bug adults are active in peach orchards. Heavy populations were present in two out of four orchards where jarring records were taken April 14. Control measures will be needed during bloom. An occasional stink bug was found where peaches were jarred on April 14 but it is too early in the season for stink bugs to be present in injurious num-

bers. No plum curculio adults have been taken in peach tree, to date.—D. W. Hamilton.

#### Aphids and Mites Active in Florida

GAINESVILLE, FLA.—Insect Infestation Highlights (April 11): Very few screwworms in the Manatee County area. High populations of aphids and mites are being found on plants in general this spring.

Green peach aphid averaging 1-20 per plant on potatoes at Hastings, St. Johns County and LaCrosse, Alachua County. Colorado potato beetle in all stages infesting tomatoes and eggplants at Orange Heights and LaCrosse, Alachua County. Aphids are a major problem in the Manatee County area.—R. E. Woodruff.

### Alfalfa Weevil Poses Threat in South Carolina

CLEMSON, S.C.—W. C. Nettles, leader, Clemson entomology and plant disease extension work, reports that the alfalfa weevil, which was first reported in South Carolina last season, bids to be a major pest of alfalfa and will spread to all parts of the state.

He says surveys indicate all counties in the Piedmont area, and Florence County in the Coastal Plains area, have at least some infested fields. The surveyors observed heavy damage in Newberry, Greenwood and Abbeville counties.

### Boll Weevil Survival Low in North Carolina

RALEIGH, N.C.—The trash examinations made during March revealed that very few weevils survived the low temperatures. The Piedmont area for the Carolinas showed only 4.5% survival; the North Central areas of

North Carolina only 2.4% survival and the southern Virginia-northern North Carolina area 1.6% survival.

Scotland County data which is included with the Coastal Plains area for the two Carolinas shows no weevils in the trash at this time. The percent survival for Florence County, South Carolina, is the lowest on record.

We expected the low temperatures to reduce the pest, but weather conditions in June (rainy and cool weather) can cause the pest to "come back" fast.—George D. Jones.

### Corn Borer Survival High in Iowa County

AMES, IOWA—An early spring corn borer survey in Boone County shows that 86% of the borers present last fall survived the winter. Another survey of corn stalks in fields planted to oats will be made in late April.

Entomologists in Illinois recently released a summary of soil insecticide data covering three years. On the average, both row and broadcast treatments gave 4.2 bu. an acre better yields than untreated checks. They report a trend toward use of less than the recommended dosage which worries them. If the long, long-range forecasts are correct, May will be wet and cold. This is ideal for seed corn beetle, seed corn maggot cutworms and sod webworms.—Harold Gunder-son.

### 300 Attend Oregon Weed Control Meetings

SALEM, ORE.—Nearly 300 persons attended the weed control meetings recently sponsored by the Oregon Department of Agriculture, the Oregon Highway Dept. and Oregon State College in eastern Oregon.

Interest is growing year by year in the cooperative meetings, which are for all applicators of sprays to control weeds. This information comes from S. R. Kelso, supervisor of herbicide control for the Oregon Department of Agriculture. Attendance at the 1958 meetings was about 20% higher than in 1956, the last time the sessions were held in eastern Oregon.

The meetings were built around the type of work being done on state and county highways and in irrigation ditches. About 3% of those attending the meetings were farmers. At the close of each session, examinations were given to persons who wished to apply for a custom applicator's license. Twelve new commercial applicators were licensed, according to Mr. Kelso, in addition to highway department employees.

### New Colorado Firm Begins Production

DENVER—Organics, Inc., a new firm here, is planning to market this spring a fertilizer which will be a combination of dehydrated cattle manure and 10-6-4 fertilizer. Production has started in a new \$200,000 factory near Brighton. Gordon L. Sutherland is president of the firm.

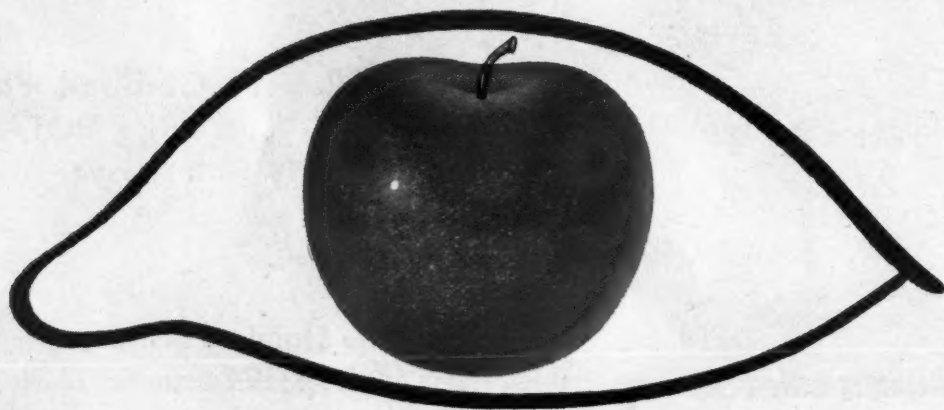
### North Carolina Tonnage

RALEIGH, N. C.—North Carolina fertilizer shipments during February totaled 92,288 tons, a decline from 145,662 tons in February, 1957, according to the North Carolina Department of Agriculture. The tonnage for the first eight months (July-February) of this fiscal year amounted to 358,398 tons, compared with 436,829 in a corresponding period a year earlier.

### STAUFFER SALES DOWN

NEW YORK—Both its sales and profits for the first quarter of 1958 showed a decline, Stauffer Chemical Co. has reported. Sales were down 3% to 4% below the total for the first three months of 1957, Hans Stauffer, president, stated.

# Here's the apple of your eye!



Protected by **Ryania** \*  
till the instant it was picked!

Grow better-looking, unblemished fruit! Your apples will show less pitting, fewer scars if you combat codling moth all season long with Ryania!

- Ryania leaves no harmful residues. It's exempt under the Miller Bill for spraying right up to harvest!
- Ryania encourages beneficial insect species!
- Ryania is fully effective against resistant strains!
- Ryania doesn't injure plant tissues!
- Ryania is non-hazardous to use!

Your dealer can supply your requirements now. Or write to Penick for further information.

# PENICK

\*Patent Nos. 2,400,295 and 2,590,536



Agricultural Chemical and Insecticide Division

S. B. PENICK & COMPANY 50 CHURCH ST., NEW YORK 8 • 735 W. DIVISION ST., CHICAGO 10





ACTUAL PHOTO OF MONSANTO'S LION IN A DEALER'S STORE

## To make more money — put LION in your store

**LION BRAND AMMONIUM NITRATE** advertising and field promotion help you sell more by getting across to your customers these facts:

- Lion brand is *guaranteed* to contain 33.5% nitrogen.
- Lion brand contains both of two important kinds of nitrogen: quick-acting nitrate nitrogen that gets plants started fast... and *long-lasting* ammonia nitrogen that resists leaching, feeds crops steadily for months.
- Lion brand is prilled... coated pellets of uniform size for easier spreading.
- Lion brand is *guaranteed* to flow freely not for just a year, but *until used*, when stored properly.
- Lion brand is now in a new green and yellow bag constructed to give greater protection.

**MONSANTO'S PROMOTION AND ADVERTISING** increase your sales and profits with:

- Advertising campaigns promoting mixed fertilizer as well as Lion brand in leading farm publications read by your customers.
- Local farm radio, billboards and local newspaper advertising support.
- Literature on crops grown in your area, including mixed fertilizer recommendations.
- Fertilization wall charts for your area.
- Soil test sample bags, memo books, decals, book matches, product samples, banners, folders and many other promotional items.

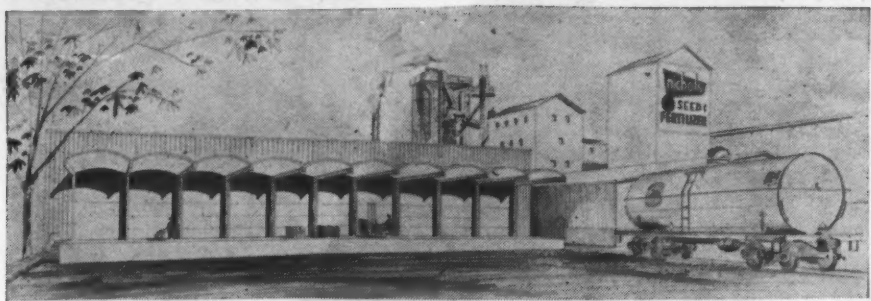
This year LION brand is better than ever... more uniform in size... can't cake when bags are stored properly.



**World's largest producer of prilled Ammonium Nitrate**

**MONSANTO CHEMICAL COMPANY • INORGANIC CHEMICALS DIVISION • ST. LOUIS 24, MISSOURI**





ARCHITECT'S SKETCH OF NEW NICHOLS WAREHOUSE

### Nichols to Expand Wheatland Facilities

OKLAHOMA CITY, OKLA.—Nichols Seed & Fertilizer Co. has announced plans for an expansion of its plant at Wheatland, which is in the Oklahoma City metropolitan area. The expansion, expected to cost upwards of \$200,000, will include new general offices and a 150 ft. by 300 ft. warehouse.

The firm plans to consolidate all of its seed and fertilizer processing and distribution at the Wheatland site, and will move its present offices there from the present Oklahoma City location, Earl E. Nichols, president, said.

Last summer the Nichols firm and the Samuel Roberts Noble Foundation, Inc., Ardmore, Okla., joined in a novel research program designed, in part, to help develop new crops and

to demonstrate the importance of proper fertilization and use of chemicals in economic crop production.

### South Carolina Sales

CLEMSON, S. C.—March fertilizer shipments in South Carolina totaled 206,229 tons, down from 233,862 tons in March, 1957, the South Carolina Department of Fertilizer Inspection and Analysis reports. Shipments for the first nine months (July-March) of this fiscal year amounted to 403,652 tons, down about 22% from 516,670 tons in a corresponding period a year earlier.

### Kentucky Sales

LEXINGTON, KY.—Kentucky fertilizer sales during February totaled 33,137 tons, compared with 43,070 tons in February, 1957, the Kentucky Department of Feed & Fertilizer reports. February, 1958 sales included 28,023 tons of mixed goods and 5,114 tons of materials.

### Boll Weevil Threat Shapes Up in Georgia Despite Low Survival

ATHENS, GA.—Georgia cotton growers will have plenty of boll weevils to deal with as this cotton season begins in spite of the next lowest percentage of winter survival of weevils in seven years of record keeping in the state.

Although the winter survival rate for the state was only 34%, 41% of the 39 fields in four regions of Georgia examined this spring were found to be infested, according to Dr. C. M. Beckham, chairman, division of entomology, Georgia Experiment Station.

Dr. Beckham reported that the average for the state was 731 live weevils per acre of surface trash compared to 1,036 weevils per acre last year. The boll weevil survival count was conducted March 3-10.

The average number of weevils per acre and the survival percentage, respectively, for the different areas where samples were collected were as follows: Northwest (Gordon County) 97 and 9%; North Central (Spalding and Pike counties) 1,307 and 26%; East Central (Burke County) 968 and 54%, and South (Tift County) 532 and 100%.

Five samples of two square yards each were taken for each of the 39 fields examined. The maximum number of weevils per acre from one farm was 7,744.

"We cannot say definitely whether this year will be a better or worse weevil year than any previous year," declared Dr. C. R. Jordan, entomologist, Agricultural Extension Service, University of Georgia College of Agriculture, in releasing Dr. Beckham's report. Dr. Jordan said that weather during June and July will be the most important factor in determining how severe the boll weevil infestation will be.

### Dr. Paul D. V. Manning To Retire from IMC

PASADENA, CAL.—Appointment of Dr. Paul D. V. Manning as professor of chemical engineering at the California Institute of Technology has been announced here by Prof. E. C. Watson, dean of the faculty. Dr. Manning, whose appointment becomes effective on July 1, will retire on June 30 from his position as senior technical vice president, International Minerals & Chemical Corp., Chicago, after 17 years service, in accordance with the company's retirement program. He joined International in 1941 as director of research and two years later was made a vice president.

A specialist in the fields of chemical engineering and research administration, Dr. Manning's career has included editing, teaching and lecturing in addition to his industrial research positions, and he is the holder and co-holder of a number of U.S. and foreign patents.

Prior to joining IMC in Chicago, Dr. Manning had been for 14 years (1927-41) the Pacific Coast editor in San Francisco of Chemical and Metallurgical Engineering. During the same period he was a consulting engineer (1927-39), vice president and member of the board of directors of the Marine Magnesium Chemical Co. (1935-39), vice president of the Western Condensing Co. (1934-41), and director of research for the Golden State Co. Ltd. (1939-41).

### Suit Dismissed

MINNEAPOLIS — District Judge Leslie L. Anderson has ruled that the Howe, Inc. fertilizer plant in Brooklyn Center, a Minneapolis suburb, was not conducting the operation of its wholesale chemical fertilizer plant in such a manner as to constitute a nuisance. Judge Anderson dismissed a lawsuit brought against the fertilizer firm by the village of Brooklyn Center and the city of Minneapolis.



**DUVAL**

Drilling blast holes with a multiple mounted drill in the Duval mines near Carlsbad, New Mexico. One of the many processes which bring you...

# High Grade Muriate of Potash...

HIGH ANALYSIS • DEPENDABLE SUPPLY • UNSURPASSED SERVICE

DUVAL SULPHUR  
and  
POTASH CO.

Exclusive Distributors

**ASHCRAFT-WILKINSON CO.**  
ATLANTA, GEORGIA

Cable address: Ashcraft

Portland, Va. • Charleston, S.C. • Tampa, Fla. • Jackson, Miss. • Columbus, Ohio • Montgomery, Ala. • Des Moines, Iowa



# WANT TO MAKE YOUR SALES RECORDS POP THIS YEAR?

DIXIE NITROGEN'S FREE POINT-OF-PURCHASE SALES AIDS CAN HELP YOU DO IT!

YOU'LL GET BIGGER MIXED FERTILIZER SALES — Because DIXIE'S theme was, is, and will be . . . all season long . . .

## IT TAKES BOTH



Mixed Fertilizers and DIXIE Nitrogen for BIGGEST YIELDS and PROFITS!

**YOU WANT TO MAKE MORE MONEY**  
So does the farmer. So do we. The only way we can all expect to benefit is through promotion and use of recommended complete fertility programs.

Farmers who follow recommended complete fertility programs make more money. They buy more from you. And you in turn buy more from manufacturers who buy from us. So,

**WE'RE SELLING COMPLETE FERTILITY AND WE'RE NOT PULLING ANY PUNCHES!**

## 4 steps to profits

**NITROGEN**  
**MIXED FERTILIZERS**  
**LIME**  
**SOIL TEST**



### AD MATS

Use these mats to advertise in your local newspaper. Let your customers know where to buy their mixed fertilizer and DIXIE Nitrogen.



The farmer reads DIXIE Nitrogen ads—in all leading farm magazines.



He hears our double barreled DIXIE sales story on the big and local radio stations.



He sees our billboards.



He talks it over with his county agent, banker, neighbor.



He talks it over with you, reads DIXIE folders, see DIXIE charts and metal signs you hung.

**BUT HE DOESN'T MAKE HIS DECISION TILL HE'S READY TO BUY. HELP HIM DECIDE TO DO BUSINESS WITH YOU—WITH YOUR FIRM. ORDER AND USE YOUR FREE SALES TOOLS TODAY...**

**... AND YOU'LL CLOSE MORE SALES!**



DIXIE NITROGEN'S FULL LINE OF SALES LITERATURE. EACH PIECE A COMPLETE "SALES CALL." EACH PIECE BASED ON EXTENSION SERVICE FACTS. EACH PIECE SELLING PROFITS—PROFITS FROM A COMPLETE FERTILITY PROGRAM. EACH PIECE DESIGNED AS A SELF-MAILER.

## TRUCK DECALS

BIG 24" x 18". Plenty of room for you to put your name and address.



YOUR NAME GOES HERE



## INDOOR WALL CHARTS

THREE OF 'EM!

"It Takes Both" (8" x 20")  
"4 Steps to Profits" (17" x 22")  
"Wanted" (8" x 20")



## METAL OUTDOOR SIGNS

Colorful 3' x 2' signs ready to nail to wall or loading door. Limited supply. Order early.

# ORDER THESE FREE SALES TOOLS TODAY

## SOUTHERN NITROGEN COMPANY, INC.

P. O. BOX 246 • SAVANNAH, GEORGIA

**YESSIR!** You can send me FREE—no obligation of course—the following:

### THIS MANY

- sets of WALL CHARTS
- PASTURE PROFITS FOLDERS
- BIG PROFITS ON SMALL GRAINS FOLDERS
- GROW, CORN, GROW! FOLDERS
- MORE COTTON-PICKIN' PROFITS FOLDERS
- NEWSPAPER MATS □ 4" x 5" □ 4" x 10"
- OUTDOOR METAL SIGNS
- TRUCK DECALS

### SHIP FREE MATERIAL TO:

Name \_\_\_\_\_

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

(We reserve the right to limit quantities if our supply should run short.)





**CONTROL OFFICIAL**

(Continued from page 1)

ample, Mr. Rollins said that metal chelates applied for correction of nutrient deficiencies have seemed to inhibit the development of mites on plants. Should they be pesticides, fertilizers or both, Mr. Rollins asked.

"To add to the confusion a farmer might use either a fertilizer or a pesticide for a certain need," Mr. Rollins said. For example, if his trees suffered from a copper deficiency, he

might use bordeaux, a pesticide or apply copper chelate, copper frits, or copper sulfate, all fertilizers."

Mr. Rollins explained the complicated situation further by reminding that the newer agricultural chemicals provide dozens of new compounds to affect soils and plants in new ways. "They don't kill pests and don't feed plants as 'classical' pesticides and fertilizers do," he said, "and still they are like these two kinds of materials."

"Some seem to be more closely related to fertilizers because they make plants grow better, or to pro-

duce desirable changes in crops." He then named a lengthy list of materials that promote rooting of cuttings, inoculants of nitrogen-fixing bacteria for legume plants, soil conditioning agents to improve set in tomatoes and berries, chemicals to reduce excessive drop of citrus fruits and deciduous fruits, and others to break dormancy in potatoes.

"There are materials to make plants grow taller, others to reduce growth," Mr. Rollins said. "Some new materials seem closer to being pesticides since they kill a pest or part of the plant—such as defoliants and desiccants, and materials to kill the tops of plants. All of these materials are sold by the same dealers, and the farmer gets confused at having to decide the classification of materials he buys, and anyway, he doesn't care. The farmer isn't going to bring along a lawyer and a microscope when he wants to buy some of these dual-purpose materials," Mr. Rollins observed.

**SPRING SALES**

(Continued from page 1)

oil Co. says that sales won't decline much in his area. However, farmers are more careful in their buying and more inquisitive about the results expected.

"They are more price-conscious," he said, "and are trying to stretch the dollars a bit further."

In Eastern New Mexico, dealers report about the same situation. Fertilizer sales have been down mostly because of restricted buying power. Banks and lending agencies are much stricter in lending money. Instead of loaning a producer enough to make a crop, they are putting it out on the installment plan.

"They are keeping a close check on what the farmer buys," said one dealer. "If a farmer gets a fertilizer loan, the lending agency wants to know what kind he buys, how much and what results can be expected. This policy has been holding down sales."

Despite these problems, however, there are a few bright spots in the picture. Several dealers report an increased use of fertilizer among town residents. They are using it for the first time on lawns and gardens, and are buying allied products such as peat moss, herbicides and pesticides.

The insect problem may be quite severe in many sections. County agricultural agents and entomologists predict that insects may be troublesome this year, due to the excess moisture. The winter temperatures have been below normal since Christmas, yet they were not severe and there may have been a big carryover of insects.

"You never know about those things, though," said an entomologist. "Year before last we had plenty of alfalfa aphids, and then in 1957 they were light. We are reasonably certain the cotton insects will be with us this year, and perhaps in large numbers."

In analyzing sales potential, several dealers said that too many people are selling fertilizer. Not only has this lowered the volume for veteran dealers, but it has also caused a competitive war which results in no one making any profit.

"There is only one way to beat these Johnny-come-latelies," said a West Texas dealer. "That is to get some applicator rigs and spread the material for farmers. Our acreage charge is just enough to cover tractor depreciation, incidentals and labor costs, but we make a legitimate profit on the materials sold. This has enabled us to sell a large volume, and stay in business."

Other trends noted by dealers are an increasing use of potash on cotton and vegetable crops, a tremendous interest in weed killers and systemics.

And one problem always present but much more so now is credit buying. Numerous dealers have put up "Fertilizers Sold for Cash Only" and "All Bills Must Be Paid Within 30 Days" signs where the customers can see them.

"We've always had this problem," one dealer said in summing up what others also believed, "but it's worse now. Margins are low enough, anyway, so we can't afford to stretch our policy on credit buying."

**American Cyanamid Co. Appointments Announced**

NEW YORK—Frank S. Washburn, general manager, agricultural division, American Cyanamid Co., has announced the appointments of Dr. J. T. Thurston, B. F. Bowman and G. L. Oppel to key posts in the division.

Dr. Thurston has been appointed technical director, Mr. Bowman marketing director and Mr. Oppel manager of manufacturing. Cyanamid's agricultural division was created through the merger of the farm and home and phosphates and nitrogen divisions.

**FORMULATORS!**

ESPESOL 5 now registered for labeling purposes as a XYLENE-BASE solvent!

Eastern States Petroleum & Chemical Corporation

P. O. Box 5008

Houston 12, Texas

WA 3-1651

**NATIONAL POTASH OFFERS PRECISION SCREENING**

From the newest and most modern potash refinery, NATIONAL brings precision screening to the fertilizer industry.

Order a car today of our Standard or Coarse muriate for a more uniform and free flowing product, and test this superior potash in your mixed fertilizer.

Telephone, wire or write to:

**NATIONAL POTASH COMPANY**

205 EAST 42nd ST. • NEW YORK 17, N. Y. • ORegon 9-4950  
212 Bell Building • MONTGOMERY, ALA. • AMherst 5-8234





## Texas Fertilizer Dealer Pushes Program to Double Cotton Yield

By Jess Blair  
Croplife Special Writer

Since Lendol Barker started selling fertilizer in Dell City, Texas, he has seen sales rise from almost zero to 3,000 tons a year. As manager of the Western Cottonoil Company's farm chemical store, it has been his job to talk fertilizer, encourage farmers to put on more per acre, and advise them on methods and amount of application.

After the first trials, farmers have not been hard to convince that fertilizer pays off on their irrigated cotton. The main problem has been to get them to apply optimum amounts and use it correctly.

Mr. Barker has several time-tested methods of making sales. The most important is in keeping records on fields that have been treated. He knows practically every farmer in this isolated farming district, and in many cases has a mental picture of the fields. He also knows the size of the irrigation wells, the ability of the grower and the crops to be grown.

"I know of nothing as important as keeping tab on fertilizer use," he says. "It does no good for a salesman to tell a farmer that 400 lb. of fertilizer per acre will double his cotton yield, unless there are figures to back it up. Experimental trials in other areas mean little, but if you can point to the man's neighbor and say: 'John Jones increased his cotton by 150 lb. of lint per acre by using \$15 worth of fertilizer,' then you're doing some good. That farmer will talk to John Jones, whom he likes and respects, and you'll have another good sale made."

Another selling point is to know exactly what kind of fertilizer to use, and how much is needed. Mr. Barker gets this information from several sources: The producers themselves, county farm agent, Soil Conservation various experts sent out by the sup-

Service, experiment stations, and plying companies.

"We start from the soil test, though," he says. "Several samples are sent to the laboratory and analyzed. That usually tells us to use phosphorus and nitrogen. As the soils deteriorate from heavy cash crops, we must use more nitrogen."

Knowing the maximum amount to use has been learned mostly by experiment. Six or eight years ago the soils were virgin in this new farming area. They were fertile and fertilizer was not used. Yields were only about a bale per acre, however, even with good soil and plenty of irrigation water. Then farmers began using larger amounts until now some of the better producers put on as much as 300 lb. 21-53-0 and 400 lb. of ammonium sulphate.

"We learned this pays off by putting on a little more each year," Mr. Barker says. "And we still don't know how much is enough. The farmers who put on 700 lb. to the acre made over three bales of cotton per acre, which makes this one of the highest-yielding cotton areas in the nation."

**The soils are fairly shallow and are inferior to land in many other irrigation belts, so Mr. Barker and others think fertilizer is responsible for the rapid increase in yields.**

The company has helped educate most of the leading farmers in the use of fertilizer, however there are still many who want to get by as cheaply as possible. They put on lower-analysis material to save money and apply fewer pounds per acre.

**The men must be sold over and over again until they definitely know that adequate fertilization pays off. Mr. Barker does not overlook these sales, but talks to the men in town or gets in his pick-up and visits them on the farm.**

"We don't do high-pressure selling," he says, "but when you know that a customer will get increased profits from your product, then it pays to get out and be a bit more aggressive."

The lush growth caused by fertilizer and water has also brought about another problem: insects. They start in early and live off the cotton until the first frost. For several years farmers ignored the early season insects such as thrips, fleahoppers, aphids and red spiders—and often lost half of the early fruiting.

"Now we advocate early season control," Mr. Barker says, "and have enough facts to prove that a three-bale per acre crop must be protected from the time of emergence until harvest."

Western Cottonoil Co. does not keep any type of applicators, either for fertilizer or insecticides. Much of it is sold direct to the farmer and delivered by truck to his farm without extra charge. During the growing season, farmers use their tractors to apply insecticides. After the stalks become too big for machines to traverse the fields, then the aerial

(Continued on page 11)



### SHOP TALK

## OVER THE COUNTER

By Emmet J. Hoffman  
Croplife Marketing Editor

The farm supply dealer's job of handling his workers has changed in the last few years, along with many other management phases of his business. When the farm economy changes, and as the needs of customers shift, likewise the salesmen who sell to the agricultural community must adopt changes in selling practices.

Fifty percent of selling is human relations, states one authority. Carnegie Institute reports that 80% of job failures are due not to lack of ability but due to faulty human relations which cause a lack of desire.

The untapped potential in each employee is considerable. One psychologist places human efficiency at only 30% of possible performance.

Accepting this as a realistic appraisal, just think of the extra production which could be achieved in a business if each employee could raise his efficiency to even 50% or 75%.

In a recent panel discussion, several sales authorities agreed that salesmen, like other people, have a desire for security, recognition (each salesman wants to look good in the eyes of his company and his associates), sense of belonging (to the company, to the group, to the gang, etc.), and a desire for new experiences (new customers, new prospects, new products).

The panelists had several other recommendations for employers.

**1. Let the salesman know exactly what is expected of him, especially when he starts. Describe his job.**

**2. Be diplomatic and tactful when praising the employee and dressing him down. Use facts to back up your praises and suggestions. Don't jump to conclusions or let quick emotions rule your actions.**

**Talk in private.** Give your salesman a chance to talk with you. Talk his language. Don't act superior or talk down. Watch the timing—there's a proper time and place for everything. Be sure the employee understands and accepts your comments, and is willing to take action. Get his full understanding of what you say to him. Give credit when due. Don't pass the buck.

**3. Make a time to review sales personnel activities by planned evaluation.** Be a good listener when having reviews and discussions with employees.

When talking, be honest. Make no intangible promises. Outline his possibilities accurately and objectively. Get him to evaluate himself. Emphasize his abilities that he might not recognize. Counsel along with your evaluation.

**4. Give employees more responsibility with commensurate authority.** Let him learn by doing. Make him feel he belongs. Explain company goals. Keep him up-to-date. Honor his ideas. Get his viewpoint. Tolerate some mistakes.

**5. Encourage men to improve themselves; subscribe to trade publications which will help train him; encourage attendance at special training and sales courses.**

**6. Have incentive plans.** Recognize accomplishments. Encourage initiative, originality, enthusiasm and integrity. Pay bonuses for good work, ideas and special sales effort. Consider profit sharing.

**7. Display interest in your employees.** Think of a man and his wife and family as a team.

**8. Delegate authority.** Set a good example pattern yourself. Let your employees assume responsibility for details.

**9. Have a good working environment.** Have a business that is pleasant and a layout conducive to good work. Have simple and efficient working procedures. Upgrade and maintain good working habits.

**10. Use personal conferences.** Rely on the personal touch.

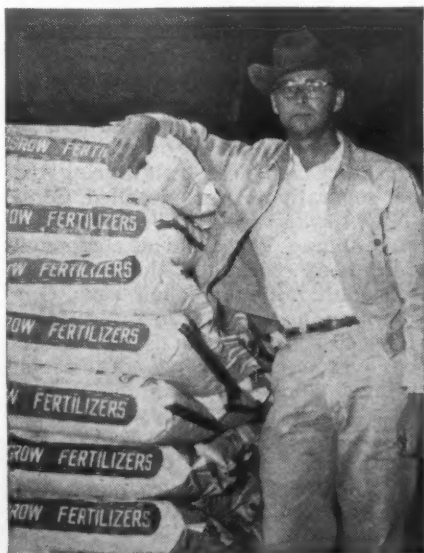
## Weed Control Practices Save Texas Cotton Farmers \$16 Million

COLLEGE STATION, TEXAS—Texas cotton producers in 1957 saved an estimated \$16,000,000 by using rotary hoes, chemicals and oils in their efforts to keep weeds and grass under control, Fred C. Elliott, Texas A&M extension cotton specialist, reports. Rotary hoes on 44,798 farm tractors were used in 150 counties to cut more than \$15 million from the hoe bill.

Lateral oiling with five gallons of naphtha an acre was used on 21,000 acres in 53 counties to cut the weed and grass control cost by \$65,000, Mr. Elliott said. The cost of application was \$1 an acre and oiling shoes with a gage wheel arrangement permitted the operators to travel at fourth gear speeds.

In one county, five gallons of naphtha an acre was applied as a fine spray on grass in the drill with 95% of the grass killed. This treatment cost a dollar an acre; eliminated hoeing and saved the producers a gross of \$7 an acre.

Spot-treatment of Johnsongrass, says the specialist, can eliminate the pest in one year while a full crop can be produced on the treated acreage.

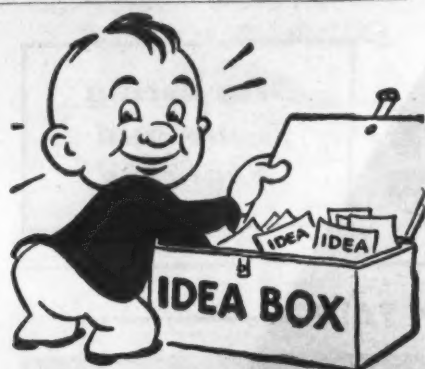


**BELIEVES IN RECORDS**—Carefully kept records and a close study of them are the main sales tools of Lendol Barker, manager of farm chemical sales for the Western Cottonoil Co. at Dell City, Texas. During the first three months this year 1,800 tons of mixed fertilizer were sold by the firm.



"You're right on time for dinner tonight. What happened, the plant burn down?"





## What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

### No. 6722—Time-Lapse Film

A kernel of corn sprouts and grows to a full-sized stalk in a matter of minutes in an educational color motion picture recently released to show the value of nitrogen for good plant growth. The film can be booked in the Midwest through the Nitrogen Products Department of the Standard Oil Co. The film was produced by Standard Oil Co. (Indiana) and filmed by John Ott, Winnetka, Ill., a specialist in time-lapse photography. The 25-min. non-commercial film, with sound narration, is called "Nature's Need for Nitrogen." It is available to farm and agricultural organizations and other interested groups. Check No. 6722 on the coupon and mail it to Croplife.

### No. 6726—Pre-Emergence Weed Killer

"Alanap" is the trade name for a pre-emergence liquid weed killer for soybeans, vine crops, peanuts, asparagus and cotton. Manufacturer of the product is United States Rubber Co., Naugatuck Chemical Division. New literature describing features of "Alanap" is available without charge. Check No. 6726 on the coupon and mail it to Croplife. Please print name and address.

### No. 6732—Endothal Weed Killer

A new bulletin (No. W-11) has been prepared by Pennsalt of Washington Division, Pennsalt Chemicals Corp., on its product trade-named, "Penco Endothal weed killer" for sugar beets. The product is effective only when applied as a pre-emergent spray; troublesome weeds can be controlled by spraying seedbeds with this water-base formulation containing 2 lb. of disodium Endothal per gallon, according to company officials. Secure details by checking No. 6732 on the coupon and mailing it to Croplife.

### No. 6736—Crabgrass Product

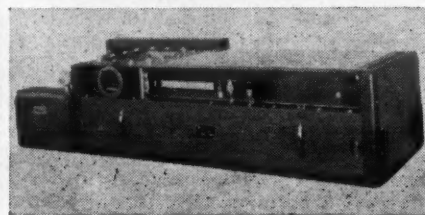
Chlordane, an established lawn and garden insecticide, is effective as a crabgrass killer, according to the Veliscol Chemical Corp. One Chlordane application in the early spring, before crabgrass seed germinates, will rid a lawn of crabgrass for the season, and provide several seasons of insect control, it is claimed. Chlordane, it was determined from experiments, kills the first true leaf of the crabgrass plant, as it emerges from the seed. A hose attachment, sprinkling can or sprayer can be used for application. Check No. 6736 on the coupon and mail it to Croplife. Please print or type name and address.

### Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

### No. 6013—Material Feeder Bulletin

Four Omega model "37-20 Hi-Weigh Belt Gravimetric Feeders" are the heart of the Red Star Fertilizer Co.'s new continuous flow system at its plant in Sulphur Springs, Texas. The Omega Machine Co., a division



of B-I-F Industries, Inc., of Providence, R.I., has made available a new illustrated bulletin telling how these feeders automatically control the analysis of pelleted fertilizer. Check No. 6013 on the coupon and mail it to this publication to secure the bulletin. Please print or type name and address.

### No. 6697—Methoxychlor Dust

Geigy Agricultural Chemicals is recommending its Methoxychlor "50" for direct application as a dust or dry powder to dairy cattle for control of horn flies. Available data from such applications has shown zero residues, it is claimed. This conforms with the recent action by the Food & Drug Administration in setting a zero tolerance for methoxychlor in milk, resulting in withdrawal of recommendations for the use of oil or water base sprays on dairy cattle. One-pound canisters of Geigy Methoxychlor "50" are being made available, as well as the standard 4-lb. bag size. Check No. 6697 on the coupon and mail it to secure details.

### No. 6720—Fly Control Spray

The Dow Chemical Co. has plans to market a new fly control chemical this spring. The material, called by the trade name "Korlan" is said to combine good residual properties with very low toxicity to warm-blooded animals. It is recommended for use in dairy barns, poultry houses, other animal shelters, general farm buildings and in refuse areas where flies breed. Effectiveness is said to be from four to six weeks. Check No. 6720 on the coupon and mail it to Croplife to secure details. Please print name and address.

### No. 6708—Dusting Product Bulletin

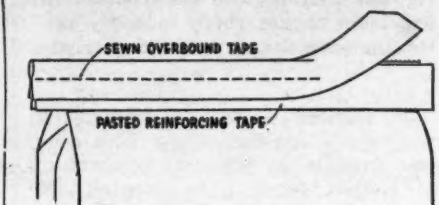
"Ser-a-Sil," a product designed for use in a variety of industrial dusting applications, such as insecticide dusting, is described in a bulletin issued by the Summit Mining Corp. Check No. 6708 and mail it to Croplife to secure the bulletin. Please print or type name and address.

### No. 6709—Miticide

Pennsalt of Washington Division, Pennsalt Chemicals Corp., has prepared a technical bulletin (No. W-12) describing Penco Fenson W-50, an acaricide formulated as a wettable powder containing 50% p-chlorophenyl benzenesulfonate. The product is said to be a long-lasting miticide that is recommended for the control of European red mite and clover mite (brown almond mite) on apples and pears in pre-bloom sprays. Check No. 6709 on the coupon and mail it to secure the bulletin. Please print or type name and address.

### No. 5971—Bag Closure Method

A method of bag closure, called "Sew-Strong," has been announced by Union Bag-Camp Paper Corp. Used with open-mouth multiwall



bags, the method employs reinforcing tapes which are fastened to both ends of the bag at the sewing line. This reinforcement serves to strengthen the bag ends where most bag breakage occurs, it is claimed. The "Sew-Strong" closure can be effected with any sewing head having a bound-over tape attachment. Secure details by checking No. 5971 on the coupon and mailing it.

### No. 6711—Insecticide Solvent Booklet

A booklet on the various characteristics and properties of insecticide solvents is now available from the Eastern States Petroleum & Chemical Corp. Information in the booklet is designed to provide insecticide formulators with facts to simplify their solvent buying and formulating. To receive the booklet, check No. 6711 on the coupon and return it to Croplife.

### No. 6714—Trithion Data

Trithion, Stauffer Chemical Company's new organic phosphate insecticide, is described in a brochure just published. The important characteristics of the insecticides, as revealed by laboratory and field tests during the past several years, are detailed. Company officials state: "Trithion is a non-systemic, long-residual compound which is an efficient miticide. It kills both adult mites and their eggs. One or two applications often suffice for a whole season. Trithion is also effective over a broad range of insects, having demonstrated outstanding control of 77 pests on 32 crops." Secure the data by checking No. 6714 on the coupon and mailing it to this publication. Please print or type name and address.

### No. 5976—Bag Closer

Production line bag closing for small bags is now claimed possible with the new Minneapolis Model JC-2 Sewing Machine recently introduced by the Minneapolis Sewing Machine Co. The JC-2 model is a power-operated, all metal conveyor unit synchronized with the sewing head for closing bags of all sizes up to

Send me information on the items marked:

- |  |   |
|--|---|
| <input type="checkbox"/> No. 5971—Bag Closure          | <input type="checkbox"/> No. 6714—Trithion Data     |
| <input type="checkbox"/> No. 5976—Bag Closer           | <input type="checkbox"/> No. 6715—Product Booklet   |
| <input type="checkbox"/> No. 6013—Feeder               | <input type="checkbox"/> No. 6716—Shanks, Clamps    |
| <input type="checkbox"/> No. 6697—Methoxychlor         | <input type="checkbox"/> No. 6717—Wetting Agent     |
| <input type="checkbox"/> No. 6708—Dusting Product      | <input type="checkbox"/> No. 6718—Spray Gun         |
| <input type="checkbox"/> No. 6709—Miticide             | <input type="checkbox"/> No. 6720—Fly Control       |
| <input type="checkbox"/> No. 6710—Spreader-Sticker     | <input type="checkbox"/> No. 6721—Fertilizer        |
| <input type="checkbox"/> No. 6711—Insecticide Solvents | <input type="checkbox"/> No. 6722—Time-Lapse Film   |
| <input type="checkbox"/> No. 6712—Diazinon Data        | <input type="checkbox"/> No. 6726—Weed Killer       |
| <input type="checkbox"/> No. 6713—Idea Book            | <input type="checkbox"/> No. 6732—Weed Killer       |
| (PLEASE PRINT OR TYPE)                                 | <input type="checkbox"/> No. 6736—Crabgrass Product |

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS  
PERMIT No. 2  
(Sec. 34.9,  
P. L. & R.)  
MINNEAPOLIS,  
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

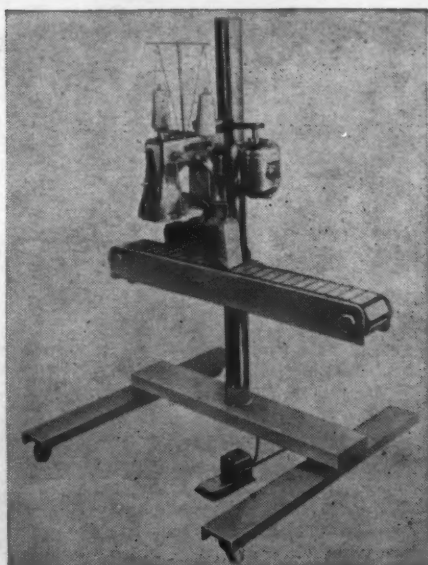
Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.





25 lb. The conveyor raises or lowers for operation in either a standing or sitting position or to line up with the filling machine. The sewing head adjusts vertically to fit the size of bag. Secure details by checking No. 5976 on the coupon and mailing it to Croplife.

### No. 6715—Product Booklet

A new booklet entitled, "Products of Atlas," has been produced by the Atlas Powder Co. The booklet describes briefly the company's major product lines, some of which have application in agricultural chemicals. The booklet may be secured by checking No. 6715 on the coupon and mailing it to Croplife. Please print or type name and address.

### No. 6717—Wetting Agent

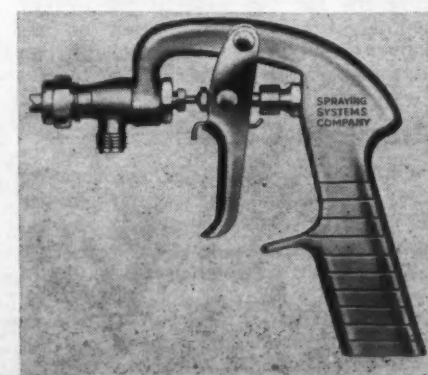
"Sole-Terge S-2-S" is an anion-active wetter-penetrant recently announced by the Sole Chemical Corp. The product exhibits "unusual wetting action in the presence of high percentages of acids, alkalis and various electrotypes," it is claimed. It has application in the pesticide processing and other industries. Technical literature is available. Check No. 6717 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6721—Calcium Nitrate Fertilizer

Two new four-page pamphlets describing the use of calcium nitrate fertilizer in growing sugar beets and fruit trees, respectively, have been published by Wilson & Geo. Meyer & Co., representative (U.S. West Coast and Hawaii) for Norsk Hydro, manufacturer of Viking Ship Calcium Nitrate from Norway. "Nitrogen Control and Sugar Beets" and "Nitrogen and Fruit Trees" are the titles of the two booklets. Check No. 6721 on the coupon and mail it to Croplife to obtain the booklets. Please print name and address.

### No. 6718—Spray Gun

Features of the new Spraying Systems Company's "GunJet No. 22"



have been announced. Its main advantage, according to the company, is that only a few parts of the gun actually come in contact with the chem-

ical sprayed. The gun is designed for pressures up to 800 p.s.i. A wide choice of capacities is available. Check No. 6718 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6710—Spreader-Sticker

A statement that "Glyodin can be used as a spreader-sticker" has been accepted by the U.S. Department of Agriculture for addition to the fruit fungicide's commercial label, according to Union Carbide Chemicals Co., Division of Union Carbide Corp. Glyodin is a control product for fruit diseases such as apple scab, sooty blotch, Brooks spot, peach brown rot, and cherry leaf spot. Check No. 6710 on the coupon and mail it to secure details. Please print or type name and address.

### No. 6713—Garden Center Idea Book

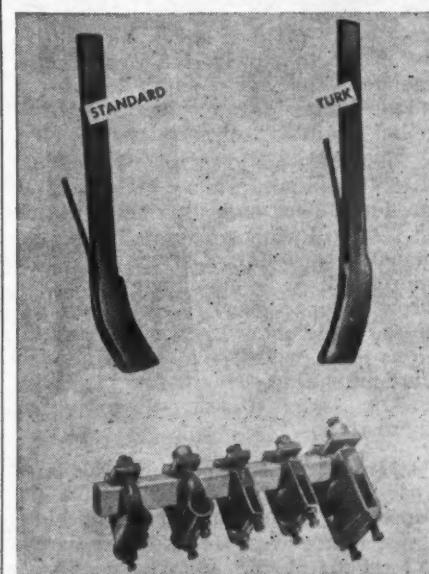
A new garden center "Idea Book" has been published by the California Spray-Chemical Corp. The 32-page publication includes sales ideas and illustrates methods of operation for the industry. The book is not for general distribution but can be used for a short time on a library-type loan basis. Check No. 6713 on the coupon and mail it to secure details. Please print or type name and address.

### No. 6712—Diazonon Data

Information about the use of the product, "Diazonon," in fruit and vegetable insect control is outlined in new literature. Secure the data by checking No. 6712 on the coupon and mail it to Croplife. Please print or type name and address.

### No. 6716—Fertilizer Shanks, Clamps

New designs of liquid fertilizer shanks and clamps (clamps are unconditionally guaranteed under nor-



mal use) are now in production by Tiura Manufacturing & Sales Co. Two designs of liquid fertilizer shanks are being made, each the result of several years' field testing, according to company officials. The Tiura standard shank gives maximum ground breakage. The Turk shank is for minimum soil disturbance. Both shanks feature special hardfacing for long blade life and fast soil penetration, it is claimed. The clamps, in several models, prevent any touching of tool bar and shank, thus protecting both. A clamp can be mounted, dismounted, or shifted on tool bar without having to loosen the shank. A shank can be installed, removed, raised or lowered without having to loosen the clamp from the tool bar. Details will be supplied if you check No. 6716 on the coupon and mail it to Croplife. Please print or type name and address.

### TEXAS DEALER

(Continued from page 9)

contractors take over and apply poisons by air.

"All this is costly," says Mr. Barker. "For instance, it takes \$100 or more to grow and harvest an acre of cotton. At a bale per acre, the owner will hardly break even. But by spending a third more money, he can increase his net profit by several hundred per cent. This has been proved repeatedly, so it's our job to keep telling farmers until every one believes and practices it."

Weed killers are just now being introduced in the area, but the farmers are interested in using this hoeless method of keeping weeds and grass out of cotton fields and irrigation ditches.

"We have a lot of trial runs this summer," Mr. Barker says. "If weed killers prove more economical and easier than manual methods, we'll start pushing them heavily. First, there must be a need for a product, then trials made to see if it works. After that is proved, then we can go all-out in selling it."

### Sales Low in Arkansas

LITTLE ROCK, ARK.—A drop of nearly 14,000 tons in fertilizer sales in Arkansas during February has been reported by the Arkansas state plant board. Totals for February, 1958, were 19,341.30 tons, as compared to 33,045.86 for the same month last year.

Tonnages for the period of July, 1957 through February, 1958 were also below the totals registered for the previous similar period. The tonnages were 90,549.86 for the latest period, and 106,121.00 tons for the previous period.

Fertilizer materials accounted for 11,142.56 tons of the February total, while mixed fertilizers totaled 8,199.30 tons, the report says. Largest seller among the mixtures was 5-10-5, while ammonium nitrate, nitrate of soda, and muriate of potash registered the largest sales of materials.

### OPEN FOR BUSINESS

MILWAUKIE, ORE.—Moore's Garden Patch, located just south of here, opened for business last week under the ownership of Bill and Rose Moore. The store features seed, garden and fertilizer supplies.

This is KALO's striking new gold foil labelled can. Here's another good reason why KALO Legume Inoculants are the line you should carry!



## KALO now opens new territories for distributors

by Myron E. Lusk, President and Research Director  
KALO Inoculant Company

For years, our company has specialized in private label inoculants. My father and all of us who worked with him have had one goal — the best inoculants in the business.

Recently, we have packaged and sold our own label inoculants in several parts of the United States with excellent sales success. And now, we're after national distribution.

If you can qualify, you can become a KALO distributor. Again, we are interested in the best — only the best will qualify for our exclusive agreement. If you are interested, please write to me personally: Myron E. Lusk, KALO INOCULANT COMPANY, Quincy, Illinois. Clip the coupon below to your letterhead and I'll send you a sample package from our new KALO line with full details.

Please send me a sample can of your new KALO Legume Inoculants.

Name \_\_\_\_\_

Title \_\_\_\_\_

KALO INOCULANT COMPANY, Quincy, Illinois



## What's Been Happening?

This column, a review of news reported in *Croplife* in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The U.S. Department of Agriculture announced an "advance" minimum average support price of \$1.36 a bu. for corn for the 1958 crop season. The price was arrived at in accordance with "forward pricing" provisions of the law.

Legislation was being considered in Congress which would result in banning use of trucks transporting fertilizer materials to farms and making return loads of a farm commodity if the commodity had been previously sold to a broker, shipping point distributor, or a terminal market receiver. The bill, HR. 5823 was introduced at the request of the Interstate Commerce Commission.

Price supports on peanuts for 1958 were set by USDA at \$213.20 ton. This price was announced as being 82% of the April parity price of \$260.

Nitrogen Division, Allied Chemical & Dye Corp., reorganized its development department at Hopewell, Va. F. O. Agel, vice president, is in charge of development activities for the division.

The need for additional applications of phosphate and potash in the state of Washington was determined by a state-wide series of soil tests. A typical 60-acre dairy farm should be investing \$1,000 a year in fertilizer, one speaker said.

That poor application techniques are often responsible for adverse legislation against the use of herbicides, was the theme of an article by Thomas J. McMahon, of McMahon Bros. Co., Binghamton, N.Y. He said that in areas where herbicides were applied correctly, the results were looked upon with favor by the population.

Despite wet weather in much of the nation and the fact that smaller acreages are predicted for crops in 1958, fertilizer industry spokesmen in April said that they expected to have a good season this year.

The Interstate Commerce Commission chairman, Howard G. Freas, came out against the transportation excise tax on freight, originally placed on shipments as a wartime plan. He said it is now an outright revenue measure.

A forest fertilization research program for California was proposed at the recent forest soils fertilization conference held at Sonoma, Cal. The conference was under the auspices of the National Plant Food Institute and the California Fertilizer Assn.

The high economic cost of weeds was cited at the recent Western Weed Conference held at Spokane, Wash. A savings of \$130,000,000 has been realized due to weed control methods developed in the past 15 years, the conference was told. This figure is for the 11 western states.

J. W. Apple, University of Wisconsin entomologist, was named president-elect of the North Central Branch of the Entomological Society of America at the group's recent St. Louis meeting.

The addition of facilities costing nearly \$1,500,000 enables the Bartow, Fla., triple superphosphate plant of the Davison Chemical Co., Division of W. R. Grace & Co., to produce run-of-pile triple superphosphate, a powder form, as an addition to the granulated material previously produced.

Indications are that the 1958 acreage of crops planted or grown may total about 333 million acres, according to the Crop Reporting Board. If realized, this would be one million acres under the 1957 low level of plantings and would be the smallest national crop planting since 1917.

Stockholders are being asked to approve a change in name of the Allied Chemical & Dye Corp. to Allied Chemical Corp., effective May 1.

The North Central Branch Entomological Society of America, meeting in St. Louis, discussed control of insect pests of forest and shade trees, cereal and forage crops, truck crops and fruit. Some 300 persons attended the three-day meeting.

Potash deliveries for 1957 showed a slight increase over tonnages recorded the previous year, according to an annual report issued by the American Potash Institute, Washington. Deliveries totaled 3,461,578 tons of potash salts containing an equivalent of 2,026,239 tons K<sub>2</sub>O, representing an increase of less than 1%.

Farmers, in stating their intentions for planting 1958 crops, failed to disclose any broad shifts for corn or spring wheat nor did they reveal any particular impact of the soil bank acreage reserve program on corn.

Speakers at the Western Weed Control Conference at Spokane, Wash., said that control of sagebrush on the 24 million acres adapted to spraying, could save more than \$40 million a year. This amount is measurable by increased forage and livestock production, it was pointed out.

Speaking before a group of gardeners in New York, many of whom were unfavorable toward spray programs to control or eradicate insects, Donald L. Miller of the National Agricultural Chemicals Assn. staff, Washington, D.C., pointed out that the fire ant itself would kill more quail, for instance, than would the pesticides used to control the insect. Mr. Miller cited statements made by authorities on birds and other wildlife to counter claims by anti-pesticide speakers.

An attempt on the part of southern cotton producers to have their acreage allotments expanded by some 30% was killed when the Senate refused to suspend the rules to take up the acreage allotment increase amendment proposed by Sen. Allen J. Ellender (D., La.).



"BUG BOARD"—Charles C. Wilson, Jr., South Florida representative for the California Spray-Chemical Corp., is demonstrating his "bug board" at a sales clinic sponsored in Miami by his company. The board was one of several sales "gimmicks" demonstrated at the clinic. It consists of a series of pictures and clippings about fruit pests and how they should be treated. Mr. Wilson uses it as an attention-getting device at gatherings.

## Keep Abreast of Sales Developments, Dealers Urged at Florida Spring Clinic

The California Spray-Chemical Corp. has completed its second annual series of spring sales clinics in major Florida cities. T. B. Byrd, Jr., Florida district merchandising manager, assisted by field representatives, conducted these clinics for members of the trade in nine of Florida's larger cities. Dealers and their employees attended the evenings of lectures, demonstrations, movies, prizes and refreshments.

At the Miami meeting, Mr. Byrd and South Florida representative Charles Wilson, Jr., told a group of garden supply dealers how to keep abreast of the times, and cautioned them that in order to stay in business they must "groom" their stores to compete with the appealing, modern, clean shopping facilities offered by supermarkets and department stores.

Mr. Byrd said that last year's statistics on garden supply stores showed that the larger ones are increasing in number and in sales volume, while the smaller stores decreased in number and sales volume. In order to survive, it was recommended that the small operators adopt better displays, better buying policies, and better sales personnel.

Speaking on displays, Mr. Byrd said, "Manufacturers are making their products more appealing through the use of colorful packaging and national advertising. Garden supply merchandise is no longer sold in brown paper bags. Trade publications, trade shows, and other promotions are exposing more people to gardening than ever before. It is up to the dealer to take advantage of these things."

Mr. Byrd also spoke on the importance of allocation of shelf space according to net profit and rate of turnover. He said that every merchant should adopt a marking code on cases of merchandise at time of receipt, and on shelf stock. The coding system was said to be necessary in order for a dealer to tell at a glance how fast a specific item is moving.

Some practical selling suggestions were mentioned and demonstrated by Charles Wilson, Jr., South Florida representative. Mr. Wilson showed what he called a "bug board" as a suggested means of getting customer attention and starting a sales conversation. The homemade board consisted of a collection of pictures and descriptions of plants and fruits and the insects and diseases commonly attacking them. The material was collected from literature, magazine ads and other sources.

Mr. Wilson also presented two similar potted plants. One was in a container as it arrived from the nursery. The other plant had been

treated with leaf polish and the container had been cleaned. A small poster reading "Look, Which Twin Has the Polish" was used to catch the customer's eye and invite comparison.

Other sales tools mentioned by Mr. Wilson included utilization of local and national advertising material by clipping and displaying ads; using mass displays of products suitable for easy stacking; groupings of allied merchandise; special lighting effects; and bargain specials to dispose of old goods.

## West Virginia Pulp Buys Fulton Bag Of New Orleans

NEW YORK—Fulton Bag & Products Co. of New Orleans is being absorbed through a cash transaction and will become a division of West Virginia Pulp & Paper Co., it was announced by officials of the two companies. An agreement has been signed and the closing is scheduled for April 3. Details of the transaction were not disclosed.

Fulton Bag & Products Co. operates plants at New Orleans and St. Louis, producing multiwall paper sacks, paper pockets, elastic multiwall sacks, waterproof paperlined bags, textile bags, canvas products and other specialties.

David L. Luke, president of West Virginia Pulp & Paper, said the bag company would be merged as a division of the parent company as soon as legal arrangements are worked out.

The present management of Fulton, headed by Jason M. Elsas, president, will continue to direct its operations. No changes are contemplated in the operating or sales organization of Fulton, which has been engaged in the bag business in New Orleans and St. Louis since the turn of the century.

"Our acquisition of Fulton Bag & Products will in no way alter our program for the sale of either our new stretchable kraft paper or our conventional grades to multiwall bag customers," Mr. Luke said.

## Grassland Contest

CLEMSON, S.C.—Prizes totaling \$500 will be awarded winners of the 1958 South Carolina grassland and pasture contests in each extension district. A circular outlining the rules and regulations has been written by Hugh A. Woodle, Clemson agronomy extension leader, and summarizes the basic recommendations for establishing and maintaining good pastures. Funds to provide the cash prizes and awards are being supplied by the Farmers' Co-operative Educational Association.



## Gloomicides

On his way to the city, commuter Jim Smith found himself seated next to a very nosy neighbor. During the course of their conversation the curious one asked Smith what he had paid for his house, his car, and what dues he paid at the country club. The exasperated Smith replied as shortly as possible, but the interrogator was undismayed as he continued: "I hear you sold that pedigreed retriever dog of yours."

"Yes," said Smith.

"Do you mind telling me what you sold him for?" pursued the questioner.

"Not at all," retorted Smith. "I sold him for chewing the table leg."

◆ ◆ ◆

The short, unhappy life of Dennis MacDougal ended at the age of 48. His bereft widow, inconsolable at first, finally got a dog to ease her loneliness. Soon she became very attached to it and her sorrow mellowed.

"She's happy because she has gotten back into her old pattern of life," mused a neighbor. "That dog is the perfect substitute for poor Dennis. He's out all day, snoozes all evening, and she feeds him out of cans."

◆ ◆ ◆

A small girl in our neighborhood has developed a disconcerting habit of running into the neighbors' houses unannounced. The other day we asked her, "Suzanne, why don't you knock or ring the doorbell instead of just walking in?"

"Because," explained Suzanne patiently, "my mommy told me not to go around ringing people's doorbells."

◆ ◆ ◆

Mary's mother, knowing the kindergarten class was working on courtesy and good manners, asked her little girl what she had learned that day. Mary answered, primly, "When you're seduced, you shake hands."

◆ ◆ ◆

A lady was overheard on the street the other day saying, "My husband's not as big a fool as he used to be."

"Oh?" asked her friend.

"Yes," she said, "I don't know what's caused it, but he's thinner."

◆ ◆ ◆

It was in a remote section of the country where the tobacco crop had been a failure on account of a prolonged drouth. One afternoon three tobacco growers met on the porch of a little corner general store, and as they sat on the porch glumly, they passed a jug of corn liquor around freely from one to the other.

"My wife is a wonderful woman to stick with me through this drouth," said one man sadly. "When I sell my tobacco, I'm going to buy her a piano."

"That's a good idea," said the second man. "I'm going to buy my wife a washing machine and some new clothes. How about you, Jim?"

"Better pass me that jug again," drawled Jim. "I ain't even out of debt yet!"

◆ ◆ ◆

The fellow was sitting in the bar. He was already fairly well on the way, so he was in excellent humor. Suddenly he asked for a piece of paper and began to figure something. For a long time. Then he said, "Hey, listen. My wife is on a diet. Just this noon she told me that she had lost 12 pounds in 4 weeks. She weighs 168 pounds. Twelve pounds less per month. Hey! I'll be rid of her in 14 months!"

◆ ◆ ◆

Received in the mail: "Please send me the name of a good book on personal hygiene. I think I've got it."

## Six-Point Program Recommended for Fertilizer Dealer as 'Team' Member

Manufacturer - dealer - customer teamwork in distributing fertilizer is necessary to achieve a common objective. This is the opinion of Laurie Peterson, Midland Cooperatives, Inc., Minneapolis, which was expressed at the recent Minnesota Nitrogen Conference.

"The fertilizer manufacturer is really the 'captain' of the team, with many responsibilities.

"The most important link in the distribution team is the fertilizer dealer, because he makes the all-important contact with the farmer," Mr. Peterson stated.

The fertilizer dealer program he offered included these points:

1. Offer a complete fertilizer service, including bagged fertilizer, bulk fertilizer, spreading service, and side-dressing or a preplant program with either ammonium nitrate, nitrogen solutions or anhydrous ammonia.

2. Sell a sound fertility program. This includes promoting soil tests, planting adapted seed varieties, stepping up corn plant populations, liming where necessary, fertilizing according to soil test, controlling insects and weeds and applying pre-plant or side-dress applications of "straight nitrogen" material.

3. Set up a training program for dealers, employees and salesmen, so they understand the products and how to help farmers get maximum return from their fertilizer dollar through wise use.

4. Advertise, by following up fertilizer company advertising with local advertising.

5. Merchandise the material in the store, with fertilizer displays, bulletin boards, taking orders in advance, keeping card files for each patron.

6. Set up demonstration plots to sell fertilizer.

## Idaho Dealer Adds Farm Chemicals, Notes Methods of Building Profits

By JESS BLAIR  
Croplife Special Writer

Adding fertilizers and insecticides to his feed business has proven to be a very profitable undertaking for George Kellogg, owner of Kellogg Mills, Nampa, Idaho.

Mr. Kellogg has been in business 14 years and saw in the expanding farm chemical business an opportunity for added profits. The sale of fertilizer, insecticides and weed killers has added considerably to the year's total volume. In analyzing the reasons for his success, the following methods have been effectively used:

1. Mr. Kellogg learned all the various soils both in the Snake River Valley where Nampa is located, and also soil types on upland farms. Some of this knowledge came from his long experience in the area, but much of it was learned from county agricultural agents, by soil tests and from agencies such as the Soil Conservation Service.

2. He saw an opportunity in buying fertilizer by the carload and supplying it to smaller dealers in the area. Now he has both a retail and wholesale business.

3. By working with applicators, he now furnishes the chemicals while they do the application work. One man with whom he works has five tandem-truck spreaders, while another supplies both fertilizers and insecticides by airplane. This business amounts to a high tonnage, and very little extra labor is required to handle it.

4. Kellogg Mills has been equipped to handle fertilizer in bulk form. Mr. Kellogg has several trucks which can carry the fertilizer and insecticides in sack or raw form direct to the farm. The trucks are weighed when loaded, and then again when they return empty to the plant.

The plant is also able to mix materials for the farmer and often produces fertilizer to his exact specifications.

5. Mr. Kellogg keeps one man in the field. He is not only a direct salesman, but an advisor, trouble-shooter and farm expert all in one. He knows the big farmers and the little ones. He keeps a mental picture of all fertilizer plots and the yields made, and has been invaluable in swinging the company's feed customers over to fertilizer users.

6. Mr. Kellogg refuses to be drawn into a price war. "There's been too much of that," he said. "The only price difference we make is on carload lots. Yet because the price margin is quite low on fertilizer and in-

secticides, we are turning more and more to bulk deliveries."

7. He tries to discourage credit buying. In this he is very business-like. If the account amounts to more than a few dollars, Mr. Kellogg asks the farmer to sign a note, with interest rates comparable to those at the banks.

"This credit business can ruin you," he says, "so we get the deal down on paper. By doing this, we have had more cash buying and the delinquent accounts have dropped appreciably."

## Added Potash Brings Better Yields

STANTON, TEXAS — Application of additional potash on a number of crops, particularly vegetables, has brought greater yields, despite the fact that some soil tests had indicated the presence of adequate amounts of potash. In the Hereford area, for instance, growers are getting good results from the addition of potash on onion crops, as well as tomatoes.

The reason for the apparent discrepancy between soil tests and growth experience lies in the unavailability of potash in some soils, according to local observers.

### Chemical Engineering Service div. of

Manitowoc Shipbuilding, Inc.  
MANITOWOC, WIS.  
Manufacturers of

## FERTILIZER PLANTS and EQUIPMENT

### COMPLETE PLANTS

Dry Mix, Acidulating and Bulk  
Loading

### EQUIPMENT

Dryers & Coolers  
Dust Collectors  
Pelletizers & Ammoniators  
Continuous Acidulators  
Mixers, Crushers, Screens  
Weighing Systems  
Elevators & Conveyors

### COMPLETE UNITS

Bulk Loading, Bagging  
Mixing & Ammoniating and  
Acidulating

### SMALL LOCAL PLANTS

Building & Equipment to  
suit local conditions

Please write for complete information

Send for your

**FREE COPY**



	Page
Facts About The Harshaw Chemical Company . . .	2
Aerial View—General Offices & Research Laboratories .	4
Essential Trace Elements in Plant & Animal Nutrition .	5
Trace Mineral Compounds . . . . .	9
Fungicides . . . . .	12
Weed Killers . . . . .	14
Miscellaneous Agricultural Compounds . . . . .	15
Available Literature . . . . .	16
Supplementary Reading . . . . .	16
Location of Sales Offices and Warehouses . . . . .	17

**THE HARSHAW CHEMICAL CO.**

Chicago • Cincinnati • Cleveland • Detroit • Hastings-On-Hudson  
Houston • Los Angeles • Philadelphia • Pittsburgh





## FARM SERVICE DATA

Extension Station Reports

Many North Carolina farmers say, "I can buy corn cheaper than I can raise it"—and they probably are right if they produce only average yields, W. C. White, North Carolina extension agronomist, says. Last year the average corn yield was 32 bu. per acre in North Carolina. This low yield hardly paid for the expenses of producing the crop when ordinary production and harvesting costs amount to about \$30 per acre.

But, there were farmers in every county in the state last year who produced profitable corn yields, such as 70, 80, and 100 bu. per acre. Aside from severe drouth conditions fertilizers made the difference between these highly profitable yields and the "break-even" yields, Mr. White says.

Thus, profitable corn production is very dependent on proper fertilization. Proper fertilization in turn starts with an adequately limed soil, and then is followed with an adequate supply of nitrogen, phosphate, and potash.

A soil test is the best way to determine how much lime, nitrogen, phosphate and potash soil needs for corn, Mr. White says. The test also shows what grade and rate can be used to supply the phosphate and potash at planting. About 20 lb. of nitrogen per acre are also recommended with the phosphate and potash application at planting to help get the young plants started. But, applications of larger quantities of nitrogen should follow as a sidedressing.

If farmers neglect to get a soil sample for recommendations, they can follow general recommendations based on conditions considered average. These general recommendations call for 400 lb. per acre of 5-10-10 or 350 lb. of 6-6-12 for the sandy Coastal Plain soils along with 60-80 lb. of nitrogen per acre as a sidedressing. A fertilizer ratio containing more potash such as 3-9-18 may be more satisfactory in rotations including peanuts and soybeans where the potassium level in the soil is low. These rates suggested above are for yields of about 60 to 70 bu. per acre in good seasons. Thus, if farmers want higher yields than these they will need to add more than what is recommended for average purposes, according to Mr. White.

★

Farmers in the Dell City, Texas, area have been increasing cotton yields almost every year for the last decade. When the land was first put into cultivation about 10 years ago, the average cotton yield was less

than a bale per acre. Now it is almost three times this mark.

In 1957 despite a hail storm and early freeze which reduced yields, several farmers made three bales per acre. Melo and Angel Chavez picked two and three quarter bales per acre on more than 1,300 acres. A few growers who had smaller acreages harvested around four bales per acre.

In this area where grain sorghums make light yields, farmers plant their cotton by the skip-row method. They spread it out over the field but are allowed to count only the cotton rows, providing the other rows are left blank during the growing season.

Several reasons are given for the production increases. Perhaps the main one has been the growing use of fertilizer. Farmers often apply as much as 200 to 300 pounds of 21-53-0 per acre, and then later in the season put on from 200 to 500 pounds of ammonium sulphate or heavy applications of anhydrous ammonia.

Another crop booster has been the regular applications of insecticides. A few years ago farmers paid little attention to the thrips and aphids. Now the spray rigs are started almost the same day the cotton emerges and are kept going until mid-season, when the aerial contractors take over.

"Farming is a scientific business in this locality," said Lendol Barker, farmer and gin manager. "Farmers are leveling their land and putting in concrete ditches for proper irrigation. Then by putting on plenty of fertilizer and water, they have been kicking up those yields every year."

Even on some of the shallow soils, which are less than 16 inches deep, a few farmers have managed to get two bales to the acre.

"That's a case of making a crop on water and fertilizer alone," said Mr. Barker, "for there certainly isn't much soil."

★

Coastal Plain pickle growers may get a better crop with an under-row application of 1-2-2 fertilizer ratio than a 1-2-1, which has been recommended, says Dr. G. A. Bradley, assistant horticulturist with the University of Arkansas' Agricultural Experiment Station.

Dr. Bradley bases the new recommendation from fertilizer trials conducted on Ruston fine sandy loam in 1956 and 1957 at Hope.

When soil tests indicate low potas-

sium content, he advises that a producer apply additional potassium under the row.

As a general recommendation, Dr. Bradley suggests an under-row application of 30, 60, and 60 lb. of nitrogen, phosphorus, and potash, respectively, followed by nitrogen sidedressings of 30 lb. an acre when vines begin to run and 30 lb. two weeks later.

The last nitrogen sidedressing is especially recommended if irrigation is available to prolong the harvest season, he said.

★

Fruit trees, vegetables, flowers and ornamentals are literally begging for plant food elements now to get them off to a quick start in early spring, according to John A. Cox, extension horticulturist, Louisiana State University.

Louisiana farmers who continue to use plenty of commercial fertilizer find this one of the most economical steps in producing horticultural crops. Producing vegetables without commercial fertilizer is practically an impossibility.

Fruit trees should be fertilized in winter so as to permit the plant food elements to dissolve in soil water, be taken up by roots, and be available when plants begin to grow in spring.

Where the clean-culture system is practiced, peaches need one lb. of 6-8-8, 8-8-8 or equivalent per year of tree age up to four years of age. After the orchard comes into heavy production, 600 to 800 lb. of the same fertilizer per acre should be applied in late winter. An additional late spring application of readily available nitrogen may be applied if necessary.

Citrus trees need 5-10-5, 6-8-8 or equivalent fertilizer. One pound per year age of tree in February may be used. To young trees, 0.04 lb. of readily available nitrogen per tree in late May or June is recommended. This application of nitrogen should be increased as the trees grow older until a 10 to 12 year old tree in heavy production receives about 0.5 to 0.7 lb. of nitrogen in late May or June.

Figs normally need about one pound per year of tree age of 8-8-8 or equivalent in March, up to a maximum of 10 lb. per tree on trees 10 years or older.

Pears should get ½ lb. per year age of tree of 6-8-8 or equivalent in February or March.

The spring cabbage crop should get 800 to 1,000 lb. of 5-10-5, 5-10-10, 8-8-8 or equivalent per acre, plus 20 to 32 lb. of readily-available nitrogen as side dressing.

★

"The farmer is cheating himself out of production when his land needs lime and he doesn't apply it," says W. R. Thompson, Mississippi extension pasture specialist.

"Even if he uses the correct amount of fertilizer, his land will not produce the most profitable returns unless sufficient lime is available."

The only way a farmer can tell just how much lime and fertilizer to use is through a soils test, Mr. Thompson adds.

"Now, during the slack season, is the time to take samples and send them to the state soil testing laboratory for analysis. If he does this now, it will allow plenty of time for the samples to be processed and recommendations returned to him."

★

Application of 2,4-D at the rate of 1½ lb. per acre reduced the number of wild garlic plants in a heavily-infested pasture at Clemson Agricultural College, Clemson, S.C.

In tests conducted by Dr. W. B. Albert of the botany department, the above-ground vegetative por-

tion of the wild garlic plants was killed by the 2,4-D, but the dormant bulbs in the soil were not affected.

It was necessary, he reported, to respray at a later date when the below-ground bulbs were germinating.

According to the tests, Dr. Albert stated that the use of the 2,4-D was a satisfactory control of wild garlic on a program of regular applications over a period of two or more seasons.

★

The rice weevil is making a comeback in South Carolina, according to surveys conducted by researchers at the Pee Dee Experiment Station, Florence.

The 1957 corn yield tests at various locations in the coastal area showed heavy infestations, which indicate quite an area-wide increase. During years prior to 1956 and 1957, infestations have been so light in the coastal areas of the state that it has not been possible to make comparisons between the different corn hybrids in order to classify them according to their susceptibility or resistance to weevils.

A survey made in the fall of 1955 by Dr. Vernon Kirk and Dr. Alfred Manwiller of the Pee Dee Station showed an infestation of less than 5% in the recommended hybrids and good varieties, while the few fields of non-adapted hybrids and varieties were about 40 to 45% infested.

A survey of the 1957 crop showed that weevil infestations had built up to 20% in the best corn and as high as 85% in the unadapted varieties. Reports indicate that some farmers bought open-husked corn for hogging-down, but a survey showed that much of this corn was actually stored. By late fall much of this open-husk corn had nothing but husk, cob, and weevil dust.

Plant breeders point out that a tight husk extending several inches beyond the tip of the ear, such as is found on most recommended varieties, reduces the chances of the ears becoming infested with weevils. A short loose shuck provides easy entrance for weevils, and corn of this kind is classified as weevil susceptible.

★

Pasture and feed production are the main avenues open for expansion in the use of farm land in Georgia, J. R. Johnson, agronomist—project leader, Agricultural Extension Service, University of Georgia College of Agriculture, states.

Mr. Johnson points out that while acres for production of cotton, tobacco and wheat are allotted, pasture and feed crop acres are not.

"Georgia has a bright future for grassland," Mr. Johnson asserts. "Good grass farming can earn as much per acre as most other crops." He said that this has been proved by Sam Neville, Bulloch County dairyman, who was 1957 state winner in the Georgia grazing system and feed production program conducted by the extension service and sponsored by the Georgia Plant Food Educational Society, Inc.

Mr. Neville, who grazes dairy cows on Coastal Bermuda grass and Starr Millet, last year had pastures with a carrying capacity of 1.5 animal units compared to the Bulloch County average of .7 animal unit. He credits adequate fertilization with most of this increase. Mr. Neville used an average of 850 lb. of fertilizer per acre on his pastures last year compared to the county average of 290 pounds.

Mr. Johnson says that because of acreage allotments and due to demands of an increasing population, Georgia is changing from a fiber-producing to a food-producing agriculture. This calls for expansion in both yield per acre and number of acres of pasture and forage plants. Extension goals include an increase

## Broyhill

Superior Quality  
SPRAY EQUIPMENT

You can be sure when you buy BROYHILL SPRAY EQUIPMENT. You can be sure of getting the performance and long life that you require. The new CHALLENGER Tri-Barrel Trailer Sprayer handles row crop, field crop, roadside and other boom spraying. Use it with gun for livestock, general spraying. Fits all tractors.

New Broyhill catalogs now available. These handy reference guides simplify your inventory of farm equipment and parts ordering. Ask your jobber for Broyhill equipment catalog or parts list catalog or write direct to:

Challenger  
TRI-BARREL  
TRAILER  
SPRAYER



Broyhill offers a complete line of trailer and tractor mounted sprayers, boom or boomless, also hand gun sprayers.

**The Broyhill Company**  
Dakota City, Nebraska





Joseph G. Shedd

**JOINS FULTON**—Joseph G. Shedd has joined Fulton Bag & Cotton Mills, Atlanta, Ga., as general manager of manufacturing. Prior to joining Fulton Mr. Shedd spent eight years as vice president and general manager of Lane Cotton Mills, New Orleans. His experience includes previous positions as resident manager of Monarch Mills at Union, S.C., and division manager for Dan River Mills, Danville, Va. He has been actively engaged in cotton manufacturing since 1929. In announcing Mr. Shedd's appointment, Clarence E. Elsas, Fulton president, stated that he will be in charge of cotton mill operations, the bleachery, finishing plant, and all warehousing, shipping and engineering.

in pasture and feed crops from 7,500,000 acres to 10,000,000 acres by 1965. Extension plans also call for an increase in the record average corn yield of 26 bu. of corn per acre in 1957 to 35 bu. per acre by 1965.

The agronomist says that a good fertilizer and lime program should be applied to any grassland farm. He points out that better pasture plants such as Coastal Bermuda will utilize this fertilizer and lime more effectively to produce high beef and milk yields economically.

★

A 40-acre corn field which yielded 87 bu. an acre in 1956, produced 140 bu. the next year, Ben P. Hazlewood, superintendent of the University of Tennessee Experiment Station, Jackson, reports.

During the field days last July, at the West Tennessee Experiment Station, visitors were shown the field, planted to Dixie 29. It had been prepared by disking in stalks of the 1956 crop, and then winter fallowed. Last April, the field was disked, harrowed and planted. Fertilization of the crop began at planting.

Then 200 lb. of 6-12-12 were applied in bands 3 in. to the side of the seed and just below the seed level. Seed corn kernels were planted 12 to 14 in. apart in 38-inch rows, or at the rate of 12,000 to 14,000 plants per acre. In addition, 1 lb. of heptachlor per acre was applied at planting so as to help control soil insects.

"Weed control consisted of two cultivations with the rotary hoe in April and two shallow cultivations with the tractor cultivator in May," Mr. Hazlewood says. "After the first tractor cultivation, 300 pounds of ammonium nitrate was applied per acre."

#### ALLIED APPOINTMENT

**NEW YORK**—Harold F. Shanahan has been named superintendent of industrial relations at the Hopewell plant of the Nitrogen Division, Allied Chemical & Dye Corp. Mr. Shanahan joined Nitrogen Division at its Omaha plant in 1954.



Doing Business With

## Oscar & Pat



By AL P. NELSON  
Croplife Special Writer

A tall, distinguished man came into the Schoenfeld & McGillicuddy Farm Supplies salesroom and approached the railed in office enclosure, behind which there were two desks, back to back. Normally, Oscar Schoenfeld and his partner Pat McGillicuddy could sit at their desks, look up and gaze right into each other's eyes.

But today this was not possible, because only one man sat at a desk. He was balding, rotund, frugal Oscar Schoenfeld. The other desk was temporarily vacant, because Pat was out selling.

Therefore, the tall, dark eyed, distinguished stranger turned his attention toward Oscar. He smiled at him in a dazzling sort of way, his dark eyes fastened on pudgy Oscar.

"How do you do?" he intoned graciously. "It's a wonderful day, isn't it?"

Oscar frowned as he looked at the stranger. Who could it be? And what did he want? Suddenly Oscar felt his eye muscles get rigid. He felt a little dizzy and was afraid that he was becoming ill. He gripped both arms of his chair and tried to turn his gaze from the dark eyed man, but couldn't.

In a moment he felt himself getting sleepy and had the sensation of being whizzed away somewhere on a big white cloud.

Through his daze suddenly came the amused laugh of the dark eyed man.

"It's all right, Mr. McGillicuddy. I'm not going to hypnotize you. You can relax now."

Suddenly Oscar found himself sitting in his swivel chair again, and he felt perfectly normal.

"I'm—I'm not McGillicuddy," he said sharply. "I'm his partner, Oscar Schoenfeld. Ach, are you tryin' to sell Pat something? Then you are wasting your time. We are not buying NOW."

"Oh, no," smiled the dark eyed man, careful not to look at Oscar too long. "I'm Prof. Elston Circoni from Strawberry County Teachers College. Mr. McGillicuddy said I should meet him here at two o'clock. It's five past two now."

"Ach, he is always late," Oscar exploded. "First he is late for work every morning. And then he takes off so much time for lunch that he is late in the afternoon. He is always late in collecting bad accounts. Ach, and look at his desk. He is always late in cleaning up that mess. Look at my desk. That's how a desk should look."

The professor's glance swept over Oscar's neat desk, with its papers in place, its row of eight finely sharpened pencils, the bulldog paper clip container, the big black 8-ball, the fish bowl full of retrieved rubber bands, and the sign on the wall, "You here again? There's another half hour gone to—!"

"Very, very interesting," he commented slowly. "All of us have our idiosyncrasies. That's what makes life so interesting. Sometime I'd like to have a conference with you. You interest me, and—"

"I do-vat?" Oscar asked disgustedly.

"Oh, the crazy little things we do for which there are no logical explanations," said the professor.

Oscar smiled tightly, which was as far as he would let a smile take over on his serious face. "That Pat," he said decisively. "Ach, he's crazy clear through. You can't figure him out. Now me—"

"He has a sharp business mind,"

said the professor. "He's not afraid to take on the new idea we tried out so successfully at Strawberry Point Normal in one of our classes. Now—perhaps you would like to join him in this experience, since you are partners. Two partners in the same state—that would attract people."

"Ach, what do you mean? What crazy idea has he got now?"

"It's not illogical at all," said the professor. "You ARE going to have a Spring Fertilizer Meeting at the High School Auditorium, aren't you?"

Oscar nodded. "I don't believe in it. It costs too much money. But that crazy Irishman—I can't stop him."

The professor ignored the remark. "Mr. McGillicuddy heard about our successful experiment at the Normal School," he said, "and he wants to duplicate it at this Fertilizer School. I am going to hypnotize your partner and he is going to sleep undisturbed in your fertilizer window all afternoon—surrounded by bags of good selling fertilizer."

Oscar's eyes were as big as saucers, and his mouth gaped. He had no reply.

"Crowds will come to see him, and then they will want to be on hand at the high school auditorium that evening at 7:30 when we will bring him out of that hypnotic trance," said the professor. "Really I think it will be excellent publicity for your firm. You'll pack the auditorium—only farmers invited you see. Don't you want to join your partner in this idea? Wouldn't it make quite a sight to see both partners sleeping side by side in a display window, with sacks of fertilizer all around?" The professor turned his dark eyes upon Oscar with intensive absorption.

Oscar felt himself getting dizzy, but with great effort swung his eyes away. "No, no!" he cried. "Get out of here. I won't have anything to do with this crazy idea. Ach, am I in the fertilizer business or in a circus? Himmel!"

The professor chuckled. "My dear man, how archaic is your thinking. This is a modern age and we must keep pace with science. Hypnosis is being used extensively in sales training today, in helping mental patients and in many ways. In the hands of a skilled practitioner, and I do have an M.A., you know, hypnosis can aid business. This idea of McGillicuddy's will draw huge crowds. Just wait and see."

"Oh, there's Pat now just driving in the yard," called Tillie, who also had been listening avidly to the professor.

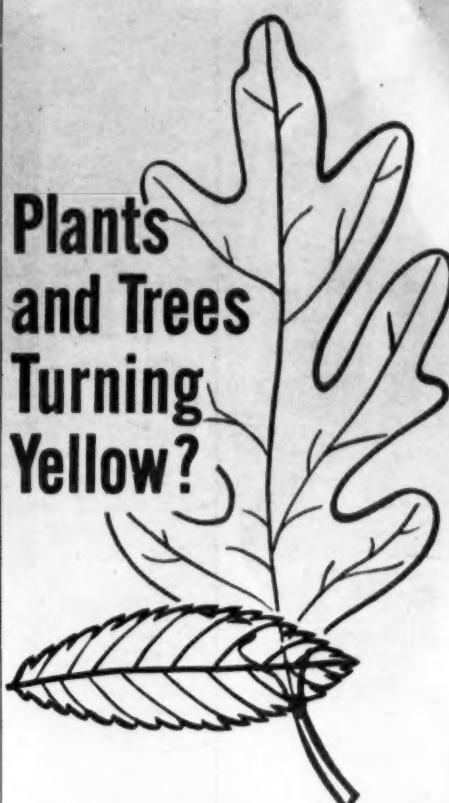
"I'll go out and meet him," said Professor Circoni. "My time is limited and we can talk in private."

When the professor had gone, Tillie had an ecstatic look in her eyes. "Oh, maybe he could teach me how to hypnotize Dave," she said dreamily. "Then I could ask

Dave to marry me and he would say 'yes.' Maybe after nine years he'll say it, even if I have to hypnotize him."

Then she turned to Oscar. "Oscar, maybe Prof. Circoni could go with Pat on his collection trips and hypnotize delinquents into paying. We could pay him a dollar per account, and—Oscar! Aren't you listening to me?"

Oscar wasn't listening. He sat at his desk, his head between his fat hands repeating gutturally, almost with a sob, "Ach du Lieber Gott! Minnie! Minnie!"



## Control Iron Chlorosis with GREENZ® 26

Now you can turn chlorotic yellow leaves green; prevent premature falling of leaves; restore vitality to iron-deficient plants and trees... all in a matter of a week or two!

Simply apply GREENZ 26, an iron complex made from a natural product—wood. Unlike synthetic iron chelates, it has caused no burning of leaves or fruit.

We want you to try this remarkable new agricultural chemical and convince yourself of its value. Send coupon below for sample and application instructions.

Crown Zellerbach Corporation  
Chemical Products Division  
Camas 6, Washington

Send trial sample of GREENZ 26 and instructions for its use.

Name \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_

**CROWN ZELLERBACH**



"It's from my fertilizer dealer. I like his calendars, but in April there ain't any picture. Every year it says the same thing."



# WEED OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



## Curled Dock

(*Rumex crispus*)

### How to Identify

This plant, also known as sour dock and yellow dock, grows from 2 to 5 ft. tall. Stems are smooth, erect, branched above, and have swollen joints or nodes. Leaves are oblong, from six to 12 inches long, of a dark green color and with wavy edges. Edges of the leaves are slightly toothed. Flowers are small and arranged in a panicle on the top of the plant and in clusters around the stem. Seeds are reddish-brown, shiny and triangular. The plant has a large, deep taproot and, in the fall, the plant produces a large rosette of leaves as illustrated.

### Habits of Plant

Curled dock is a perennial, reproducing by seeds. It is found in low areas, fields, pastures, waste places, roadsides and fence rows. The seed is frequently found in clover and seeds of other grain crops. The plant seeds July to October.

### Damage Done by Curled Dock

These plants are most damaging to tame pastures and meadows, sweet clover and such crops as remain on the same field for two or more years. It is particularly harmful when the crop is harvested for seed, since dockseed is difficult to separate from some crops, particularly clovers. Some state laws make it mandatory for labels to state when more than one dock seed per thousand is in a package of crop seeds; others make it necessary to state on the seed label the number of seed of dock per pound.

### Control Methods

Chemical herbicides will control this weed, and cultural methods, such as draining low spots, spading or grubbing out scattered plants, and mowing or plowing dense infestations before the seeds are set are also indicated. The weed does not persist in fields regularly plowed.

Illustration of Curled Dock furnished through courtesy of Dow Chemical Co., Midland, Michigan.





Hi-D®

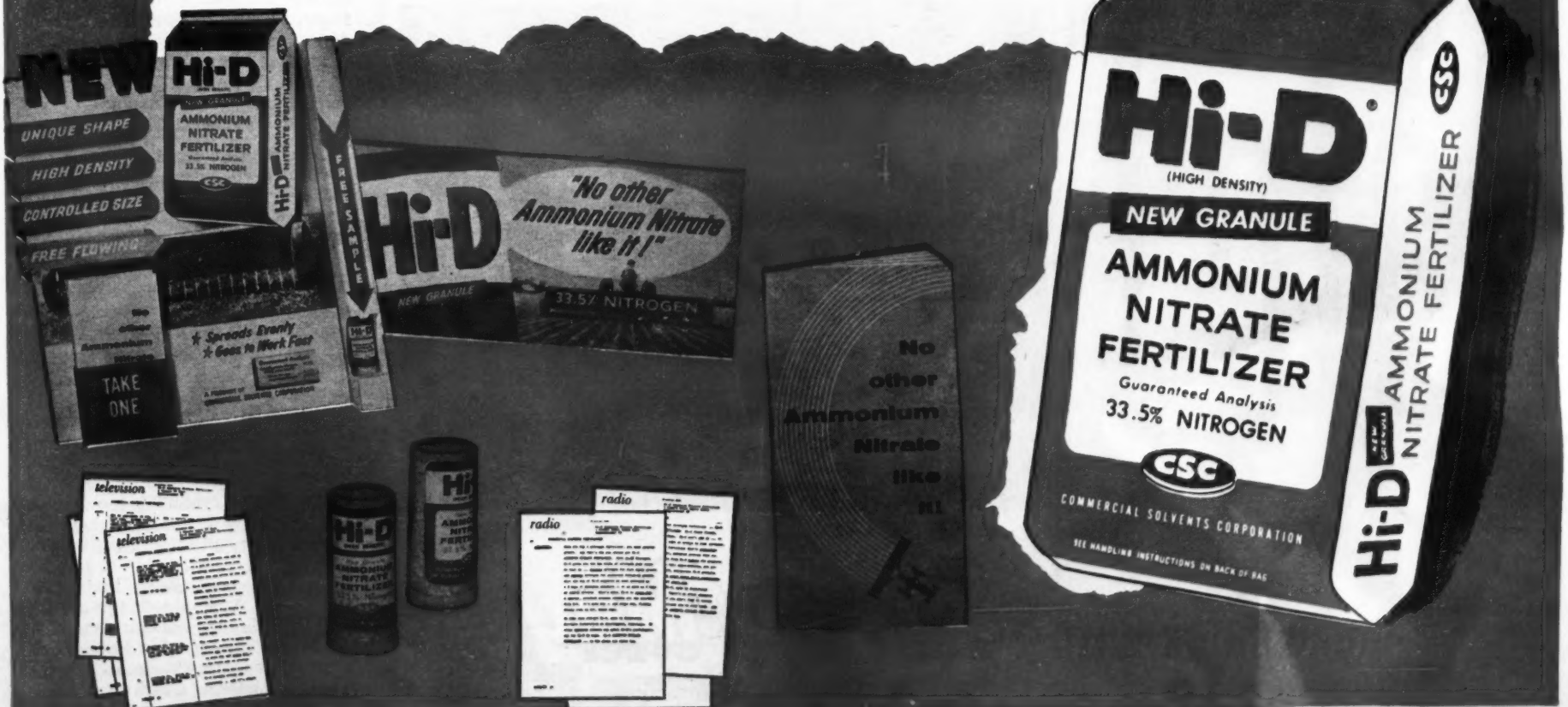
NO OTHER AMMONIUM NITRATE ADVERTISING AND  
MERCHANDISING PROGRAM LIKE IT!

Ads in Regional & Local Farm Magazines  
plus Ads in Daily & Weekly Newspapers  
plus Outdoor Billboards  
plus Radio  
plus Television  
plus Counter Displays  
plus Samples  
plus Consumer Folders  
plus Wall Banners  
plus Technical Data Service

IT ALL ADDS UP TO A PROGRAM PLANNED WITH ONE PURPOSE —

TO HELP YOU SELL MORE!

(every ad emphasizes that sound management calls first  
for the mixed fertilizer you recommend — and then the  
pay-off nitrogen boost of new Hi-D Ammonium Nitrate)





## Industry Patents and Trademarks

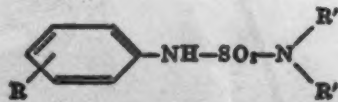
2,829,037

**Defoliating Composition and Method.** Patent issued April 1, 1958, to Heinz Pohlmann, Ludwigshafen (Rhine), Hans Krzikalla, Heidelberg, and Oskar Flieg and Carl Pfaff, Limburgerhof, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany. The method for defoliating plants which comprises contacting them with an amount of 2,5-dimethylolmercapto-1,3,4-thiodiazole effective to cause defoliation of the plants.

2,829,038

**Method of Controlling Plant Growth.** Patent issued April 1, 1958, to Paul Ochsner, Uccle-Brussels, Belgium, assignor to Union Chimique Belge, S.A., Brussels, Belgium, a corporation of Belgium. A method for the control of plant growth which

comprises applying to the plant foliage an herbicidal amount of an aromatic sulfamide corresponding to the formula



wherein R is a member selected from the group consisting of hydrogen and halogen atoms and methyl groups, and R' represents an alkyl group with 1 to 2 carbon atoms.

2,829,040

**Petroleum Pitch Fertilizer and Process for Its Preparation.** Patent issued April 1, 1958, to John K. Darin, Elizabeth, N.J., and Eldon M. Sutphin, Verona, Pa., assignors to Gulf Research & Development Co., Pitts-

burgh, Pa. A fertilizer comprising a petroleum pitch having a ring and ball softening point above about 275° F. in a highly expanded porous condition and fertilizer ingredients uniformly disseminated throughout the pitch.

2,829,082

**Fungicidal Composition Comprising 2-Amino-3-Chloro-1,4-Naphthoquinone and Methods of Using Same.** Patent issued April 1, 1958, to George E. O'Brien, East Haven, Conn., assignor to U.S. Rubber Co., New York. The method of controlling fungi on plants which comprises applying 2-amino-3-chloro-1,4-naphthoquinone to plants.

2,829,113

**Production of Nitrogen and Hydrogen for Ammonia Synthesis.** Patent issued April 1, 1958, to Martin J. Barry, Ridgewood, and Theodore S. Williams, Asbury Park, N.J., assignors to the M. W. Kellogg Co., Jersey City, N.J. A process for the produc-

tion of ammonia synthesis gas under superatmospheric pressure which comprises reforming a hydrocarbon with steam in a first indirectly heated tubular reforming zone at a pressure of about 15 to about 125 p.s.i.g. and at a temperature of about 1250° F. to about 1450° F. to obtain about 60 to 80% conversion of said hydrocarbon, contacting the reaction product from the first reforming zone at a pressure of about 15 to about 125 p.s.i.g. with steam and air under suitable reforming conditions to obtain substantially complete conversion to a reaction product containing nitrogen in the appropriate quantities for ammonia synthesis and carbon monoxide, contacting the product gas from the second reforming zone with a series of stationary spaced beds of water gas shift catalyst under suitable conversion conditions including a temperature between about 650° and 850° F. and injecting liquid water in an amount between about 0.005 and about 0.02 pound per cubic foot of carbon monoxide at inlet conditions into each of the spaces between said beds and into contact with the reactants in order to regulate the reaction temperature and furnish water for the intended reaction.

### Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

**S.A.T.**—With letters superimposed on plant leaf, for defoliant. Filed Dec. 2, 1957, by American Cyanamid Co., New York. First use May 14, 1956.

**Repellen Tissue**, in hand-lettered capitals on rectangular background, for insect repellent. Filed Dec. 31, 1956, by Whitmire Research Laboratories, Inc., St. Louis, Mo. First use May 29, 1956.

**Multi-Spray**, in capital letters, for insecticide. Filed June 27, 1957, by Missouri Farmers' Assn. Oil Co., Columbia, Mo. First use May 3, 1956.

**Profume**, in capital letters, for space, commodity, and soil fumigant. Filed Aug. 19, 1957, by the Dow Chemical Co., Midland, Mich. First use Nov. 19, 1956.

**Hex-O-Bunt**, in capital letters, for fungicidal seed-treating compound. Filed Aug. 21, 1957, by Panogen, Inc., Ringwood, Ill., by mesne assignments to Morton Chemical Co., Chicago. First use on or about May 31, 1957.

**Coppermycin**, in capital letters, for antibiotic preparation for agricultural use for the control of certain plant diseases. Filed Aug. 27, 1957, by Chas. Pfizer & Co., Inc., Brooklyn, N.Y. First use May 24, 1957.

**Bluemycin**, in capital letters, for antibiotic preparation for agricultural use for the control of certain plant diseases. Filed Aug. 27, 1957, by Chas. Pfizer & Co., Inc., Brooklyn, N.Y. First use May 24, 1957.

**Acerbin**, for liquid preparation for application to plants, seeds, etc., for promotion of growth and for making the plants and seeds resistant to insects and fungi. Filed Sept. 5, 1957, by Cerbini Research Corp., New York. First use Aug. 29, 1957.

### Office Moved

**NEW YORK**—The Chicago office of the insecticides products department of the industrial chemical division, Olin Mathieson Chemical Corp., has moved into the division's main sales office in the Wrigley Bldg., 400 N. Michigan Ave.; it was announced by W. Adrian King, division sales manager. The department formerly was located at 350 N. Clark St. All of the sales offices of the industrial chemicals division are now consolidated in the Wrigley Bldg. except those of the carbon dioxide department, located at 2545 W. Fulton St.

Meet  
a



When growers SEE  
magnesium deficiencies  
in their crops...

growers have made the first step  
toward a fertilizer sale for you. Their  
crops have given you an opportunity  
to sell premium fertilizer on quality.  
Then...



When they've SEEN the  
Sul-Po-Mag® selling story

... they know they've waited until  
it's *Too Late for Top Profits!* Whether  
growers see deficiencies in citrus, to-  
bacco, vegetables, potatoes, deciduous  
fruit, legumes—or many other crops—  
advertising urges prospects to see you  
for complete, mixed, premium fertilizer  
containing Sul-Po-Mag.

Display of this seal will sell for you!

**S.P.M.  
PREMIUM**

Premium quality  
fertilizer certified  
through use of a  
balanced combination  
of the water-soluble  
magnesium and  
potash obtained from  
**Sul-Po-Mag®**  
COPYRIGHT © 1957 S.P.M. CO.

This simple, three-step program is  
making sales right now, for farmers  
recognize the SPM seal as their guar-  
antee of premium mixed fertilizer  
containing deficiency-stopping magne-  
sium. Add the SPM seal to your sales  
force. Display it or put it on your fer-  
tilizer bags for more premium fertilizer  
sales. For full information, write the  
address below.

make sales with

**Sul-Po-Mag®**

Water-Soluble Double Sulphate of Potash-Magnesia  
(K<sub>2</sub>SO<sub>4</sub> • 2MgSO<sub>4</sub>) 22% K<sub>2</sub>O—18% MgO

**INTERNATIONAL MINERALS & CHEMICAL CORPORATION**  
POTASH DIVISION . . . . . 20 N. WACKER DRIVE, CHICAGO 6, ILL.



## New Fertilizer Plant In Washington Open

KENNEWICK, WASH.—A new Pacific Northwest industry, the Kerley Chemical Corp., has begun filling orders in four Pacific Northwest states from its mixing plant near Hover, about ten miles southeast of Kennewick.

Ralph Kerley, Phoenix, Ariz., one of four brothers who operate the firm, said the Tri-City plant will manufacture Nitro-Sul for delivery to dealership markets in Oregon, Washington, Montana and Idaho.

Mr. Kerley said his company selected Kennewick as location of its plant after the fertilizer product was found to have good acceptance among farmers in Southeast Washington and other areas of the four states geographically centered by Kennewick.

A convenient source of anhydrous ammonia produced at the Phillips Pacific Chemical Co.'s Coulee plant, two miles west of the Kerley site, also figured in selection of the location, Mr. Kerley said.

The co-owner said anhydrous ammonia will be purchased from the Phillips plant for use in mixing Nitro-Sul—a liquid comprising 20%  $\text{NH}_3$  and 45% liquid sulphur.

The company plans to bring concentrated  $\text{NH}_3$  and sulphur to Hover from its other three plants and boost them into concentrated Nitro-Sul form at the Hover plant.

## A. N. Weeks Named Bemis Vice President

ST. LOUIS—A. N. Weeks, director of production for the Bemis Bro. Bag Co., was elected vice president in charge of production at the recent annual meeting of the board of directors held in St. Louis.

Mr. Weeks joined Bemis in 1919 after graduation from Union College, Schenectady, N.Y., where he received a bachelor's degree in civil engineering. He also attended the Bentley School of Accounting and Finance in Boston, and was graduated in 1930.

Mr. Weeks' positions with Bemis have included a two-year assignment with the Angus Co., Ltd., of Calcutta, from which Bemis is the exclusive importer of Angus burlap. He was later transferred to the burlap research and grading department in Boston, where he remained until appointment as production manager of the Bemis multiwall paper shipping sack plant at East Pepperell, Mass. He became manager of the East Pepperell plant in 1938.

In January, 1957, he was transferred to St. Louis, where he succeeds A. H. Clarke, who retired as director of production.

## Texas Tests Show Need for Molybdenum

TAFT, TEXAS—Tests to determine the need of molybdenum as a supplemental fertilizer have been completed at the Coastal Bend Field Station, according to Charles True, agronomist at the station.

The crop used for the test was California bur clover, and was planted broadcast last Oct. 29. Fertilizer was applied at the following rates: superphosphate, 300 lb. to the acre; copper oxide, 20 lb.; zinc sulphate 10 lb.; and molybdenum varying from eight ounces per acre up to eight pounds. Also on one plot no fertilizer of any kind was used.

After the clover was cut, Mr. True estimated the green weight of each plot. On the plot where no fertilizer was used, the yield was 19,160 lb. per acre. The plot on which 16 ounces of molybdenum was applied made the heaviest yield of all at 38,629 lb. Where eight ounces was used, the total was 36,155. Where 8 lb. to the acre was used, the yield was 34,922 lb. green weight per acre.

## Systemic Insecticides Offer Promise, Cattle Researcher Says

STATE COLLEGE, N.M.—“Systemic insecticides offer livestock owners a new way to attack some of the destructive livestock pests,” cattlemen were told at the New Mexico Cattle Breeders School held here recently.

The speaker was Dr. H. O. Peterson of the U.S. Department of Agriculture's animal disease and parasite research division in Albuquerque. He continued: “The insecticides are not, by any means, the answer to the control of all livestock parasites, but show great promise for the control of cattle grubs, the larvae of the bot fly of sheep, and possibly larval forms of some of the other flies attacking livestock. Systemic insecticides lend themselves to treatment of large herds of animals under range condi-

tions because they can be applied in a variety of ways.”

Prevention and control of parasites and diseases of livestock were spotlighted at the two-day school, sponsored by the New Mexico Cattle Growers Assn. and New Mexico A&M College Experiment Station and Extension Service.

Another speaker, Rex W. Allen, parasitologist with the USDA Agricultural Research Service at State College, said that internal parasites are responsible for an annual loss of about \$40 million in cattle production in this country.

## University of California Receives Research Grants

BERKELEY, CAL.—Grants totaling \$6,400 were made to the University of California during February to promote some half a dozen studies in the field of agricultural chemicals.

Rohm and Haas Research Labora-

CROPLIFE, April 21, 1958—19

tories gave \$3,000 for field testing of insecticides and fungicides of various kinds. Another \$1,000 was given by the California Sugar Beet Processors to establish a grant-in-aid for the study of the relationship of the green peach aphid to the serious virus yellows problem.

A gift of \$500 was made by Allied Chemical and Dye Corp. for research on hexachloroacetone to determine its effectiveness and safety for control of bermudagrass in citrus orchards. Abbott Laboratories made a grant of \$1,500 for research on the effects of gibberellic acid on vegetable crops.

Two hundred and fifty dollars was allocated by the Golf Course Superintendents Association of Northern California for study of the turfgrass problem, and the final \$150 was given by Mead Johnson and Co. for supplies for studies in plant pathology. Additional gifts of chemicals or equipment needed in various research studies were made by several other companies.



## Granulating is fireproof with Du Pont URAMON® Ammonia Liquors

Du Pont "Uramon" Ammonia Liquors give you maximum safety in high-temperature granulating by eliminating dangerous flash fires in the mixer; and, further, by assuring safety in the pile.

Fireproof conditions are maintained in the mixer when Du Pont UAL is used. As the ammoniation proceeds, the ammonium carbamate in UAL changes to ammonia and carbon dioxide. Ammonia enters the reaction and carbon dioxide displaces the air, thus creating conditions that guard against combustion.

Four formulations are available . . . all are equally safe for granulating. For technical assistance and information on the solution best suited to your use, write Du Pont.

### HERE ARE OTHER IMPORTANT ADVANTAGES OF DU PONT URAMON® AMMONIA LIQUORS:

- High-quality nitrogen from UAL resists leaching . . . supplies both urea and ammonium forms of nitrogen.
- Won't corrode regular fertilizer manufacturing equipment, including ordinary steel and aluminum.
- Gives mixed goods better "feel"—minimizes caking, segregation and dusting.
- Suitable for either batch or continuous mixing.
- Prompt, dependable delivery enables you to schedule your production with confidence.



**URAMON®**  
AMMONIA LIQUORS

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

E. I. DU PONT DE NEMOURS & CO. (INC.)  
Polychemicals Department • Wilmington 98, Delaware

1616 Walnut Street Philadelphia 3, Pa. 7250 N. Cicero Ave. Chicago 30, Ill.

Du Pont Company of Canada (1956) Limited  
P. O. Box 660, Montreal, Quebec, Canada



## CALIFORNIA CONFERENCE

(Continued from page 1)

Dr. Carter said that animals, which have been pastured on fertilized ranges, go to the feed lot in much better condition than those grazing on untreated fields. "I am convinced," he declared, "that fertilization in annual range land is a profitable operation."

Dr. Clarence Johnson, department of soils and plant nutrition, University of California, Berkeley, described laboratory methods of determining sulfur content in soils, pointing out that the item of greatest importance is that of speed, since manpower is the largest cost in making such determinations. Both speed and precision are achieved in use of the colorimetric system, he observed.

The relationship of soil salinity and fertilization was discussed by Dr. Roy Branson, extension soils specialist, University of California, Riverside. After reviewing briefly the history of how saline soils have hindered agriculture in ages past, he reminded his listeners that there is a close relationship between the application of fertilizer and soil salinity. He said that many of the carriers used in fertilizers can cause salinity, but the likelihood of danger from this direction is remote since it would not be economical to apply fertilizer at rates heavy enough to harm any soil.

Dr. Alfred M. Boyce, director of the Citrus Experiment Station, Riverside, Cal., addressed the group at the banquet April 14, pointing out the increasing areas of cooperation between the fertilizer industry and the University of California. He said that in years gone by, experiment station and college personnel and industry people did very little in the way of working together, there being a feeling of suspicion and an area of misunderstanding about motives.

However, with the outset of World War II, when it was necessary to pool all the manpower possible to win the war, the two groups found they had much in common and old suspicions were dissipated. Now, a fine working arrangement beneficial to all concerned is in being.

"Industry is fully aware of its responsibilities in the research field," Dr. Boyce observed. He said that industry research departments are competently staffed and some of their work is superior to some of that done by some state laboratories. This has paid off in profits and in public trust, the experiment station director said.

A slide presentation of results of the recent survey sponsored by the National Plant Food Institute on "Attitudes of Farmers Toward the Use of Fertilizers" was presented to the banquet crowd by Dr. Richard B. Bahme, western representative of the NPFI. The report covered answers to the survey given by farmers in the states of Washington, Oregon, Idaho, California, Arizona, New Mexico, Utah, Nevada, Wyoming, Colorado and Montana.

The report indicated a need for further educational efforts on the part of industry in many areas, the farmers having shown some ignorance of the meaning of analysis, grade and ratio of fertilizers. It also indicated that about 30% of the farmers interviewed apparently change their fertilizer practices from year to year, showing uncertainty and perhaps dissatisfaction.

Dr. Bahme's report said that the farmer seeks information from others, and rated the county agent and agricultural college publications high on the list of sources most likely to be authentic. However, despite his feeling that these sources are best, the farmer actually talks mostly to his local dealers, family members and neighbors about fertilizer problems.

Soil tests rate high as a basis for decision about what fertilizer to use.

Some 61% of the users and 40% of all farmers reported having had their soils tested. Only 30% of the non-users had their soils tested, however. Most of these who had not had their soils tested admitted that it was because of their own negligence.

Farm demonstrations exert a considerable influence on the farmer's decision about purchasing and using fertilizer. He is more likely to believe results and adopt practices he can see and interpret in terms of his own farming operations, the NPFI report said. About a third of those interviewed said they had read about fertilizer demonstrations, and half of these said that the information was helpful.

Some curious excuses were given for not using fertilizers. Some 38% thought it wasn't necessary; 27% lacked the money; 16% blamed the weather; 11% preferred organic fertilizer.

Two panel discussions comprised the program of April 15. R. L. Luckhardt, supervisor, agricultural service, Collier Carbon & Chemical Corp., Brea, Cal., was moderator of a panel on crop response to sulfur. Comprising his panel were Lester J. Berry, agricultural extension service, University of California, Davis; Dr. Clarence M. Johnson, University of California, Berkeley; Dr. William E. Martin, extension soils specialist, extension service, University of California, Berkeley; Dr. Victor V. Rendig, soils and plant nutrition, University of California, Davis, and Dr. Albert Ulrich, department of soils and plant nutrition and plant physiologist, University of California, Berkeley.

Panel members pointed out that there are many sulfur-deficient soils in the state, and this lack is a limiting factor in many crops. Dr. Martin showed examples of outstanding plant growth brought about by the addition of sulfur to forest soils, and Dr. Johnson reminded that in some cases the addition of sulfur to soil can inhibit the uptake of molybdenum.

Dr. Rendig described his eight years of work with sulfur in alfalfa. He said that one should not regard the plant as a vehicle to carry sulfur to the animal, but that other factors that change the nutritive value of alfalfa should be explored.

Dr. Ulrich showed slides illustrating the similarity in appearance of sulfur and nitrogen deficiencies in the soil as indicated in plant leaves. He took the case of sugar beets as an example, where the yellow leaves looked like they needed nitrogen, but an application of this element did no good. The addition of sulfur, however, brought back the natural color.

Another panel on range fertilization was moderated by P. Curtis Berryman, director of the San Luis Obispo County agricultural extension

service. Appearing on the panel were M. S. Beckley, farm adviser, Santa Clara County, San Jose, Cal.; Lyman Bennion, animal husbandry department, California State Polytechnic College; Dr. Logan Carter, department of soils at Calpoly; Russell R. Helphenstine; Dr. R. Merton Love, professor of agronomy, University of California, Berkeley; and George Park, Rocca Cuvil, Inc., San Francisco.

Mr. Helphenstine told of outstanding responses to fertilization of range lands, but declared that it is wise before going into a large scale application, to make a small test plot first in order to see the reaction.

Mr. Beckley pointed out that the high cost of range land makes increases in beef tonnage an economic necessity. Wages are high and all costs are up, he reminded, which make any reduction in unit cost economically sound. He said, however, that the fertilization of range lands is not always a simple matter. In Santa Clara County alone, he said, there are some 248 different soil types. "The fertilizer people must learn the cattle business to be successful," he said, then added, "and the cattle men must learn the fertilizer business, too."

Mr. Bennion said that the gain per day of cattle on fertilized plots is about the same as on unfertilized land, but the fact that one gets more than 100 extra days of grazing on fertilized range makes the difference.

Dr. Love showed slides of agricultural scenes in Australia where he visited last year. He said that aerial application of fertilizers has become big business there, and the number of acres treated has expanded tremendously. In 1947, he said, only 49,000 acres were so treated, as compared to 4,000,000 in 1956.

The Australians handle fertilizer only in bulk, he said, and have devised efficient means of loading airplane hoppers for quick service. He said that only four minutes may elapse between landing and taking off again with a new load of fertilizer for distribution.

Mr. Park termed the sales potential for fertilizer in California as being "fantastic." He said that 35% of the 100 million acres in the state are range lands, and of these acres, some 5 million acres qualify for economical use of fertilizer. This would be a potential of 700,000 tons, he said.

### ESCAMBIA PLANT

PENSACOLA, FLA. — Escambia Chemical Corp.'s new methanol plant near Pensacola, Fla., is now on stream, according to R. U. Haslanger, company president. This is Escambia's third production unit in the Pensacola area. The company's nitrogen plant began production in 1955 and last year, a 30-million-pound polyvinyl chloride resins plant went on stream.



**NEW DAVISON FACILITIES**—Above is an airplane view of the new run-of-the-pile triple superphosphate facilities at the Bartow, Fla., plant of Davison Chemical Co., Division of W. R. Grace & Co. Previously the plant turned out only granulated triple superphosphate. (CROPLIFE, page 1, March 31.) The new storage building, left, is connected to the new processing section in the center by a conveyor belt.

## NPFI Western Research, Education Committee Formed

SAN LUIS OBISPO, CAL. — Organization of the National Plant Food Institute Western Research and Educational Committee, a technical group, was made here April 13. The committee will operate in Arizona, California, Nevada, Oregon, Washington, Idaho, Utah, Montana, Wyoming and Colorado to assist in the formation of technical programs of NPFI in this area.

Other functions of the committee will be for its members to serve individually as advisers to Todd Tremblay, northwestern representative of NPFI, Seattle, and Dr. Richard B. Bahme, San Francisco, western representative.

Chairman of the committee is D. W. Bourg, United States Steel Corp., Salt Lake City. He will hold office up to June 30, 1959.

In its organizational meeting, the committee reviewed plans and projects of the Institute in the West, recommending a number of changes and new projects which will be voted on by NPFI members at a later date.

Members of the committee, in addition to the chairman, are Karl Baur, chemical division, Pacific Co-op, Portland, Ore.; C. E. Brissenden, J. R. Simplot Co., Pocatello, Idaho; Rod Alexander, Northwest Nitro-Chemicals, Ltd.; Keith B. Campbell, Western Phosphates, Inc., Salt Lake City, Utah; L. W. Davis, Swift & Co., Los Angeles; J. R. Green, Anaconda Co., Bozeman, Mont.; L. E. Gould, Shell Chemical Corp., Torrance, Cal.; D. A. Jamison, Cominco Products, Inc., Spokane; A. O. Jensen, American Cyanamid Co., Orinda, Cal.; Randy Keim, Wilson & Geo. Meyer & Co., San Francisco; R. L. Luckhardt, Collier Carbon & Chemical Corp., Brea, Cal.; Dr. M. E. McCollam, American Potash Institute, San Jose; Dr. M. H. McVickar, California Spray-Chemical Corp., Richmond, Cal.; Dr. G. F. Macleod, Sunland Industries, Inc., Fresno, Cal.; Dr. J. L. Mellor, Olin Mathieson Chemical Corp., Phoenix; Earl J. Shaw, Chilean Nitrate Sales Corp., Los Angeles; and T. A. Steele, American Potash & Chemical Corp., Salem, Ore.

### California Chemical Employment Drops

SAN FRANCISCO — Employment in California's chemical manufacturing industry dropped to 38,100 wage and salary workers in February from the 38,800 figure in the same month last year. This information from the California Bureau of Labor Statistics also noted that employment in the chemical industry here was down 400 in February from the January 1958 figures.

Salaries for production workers in the industry went up in February to average \$98.06 per week in contrast to a \$94.42 average wage in February 1957. The February figure was down slightly from the \$99.64 recorded the previous month. Average hourly earnings fluctuated in much the same pattern with \$2.42 in February, \$2.44 in January and \$2.30 a year ago.

### AEC GRANT

STORRS, CONN. — A \$5,000 grant for the use of nuclear energy in studies of plant nutrition has been awarded to a scientist at the Storrs Agricultural Experiment Station of the University of Connecticut by the U.S. Atomic Energy Commission. The grant can be renewed annually for the next four years. The studies deal with the fundamentals of nutrient ion behavior in plants. Dr. Fred H. Emmert, associate professor plant nutrition, is investigating the forces which regulate uptake and accumulation of nutritional elements in plant tissue.



## FOREST INSECTS

(Continued from page 1)

ranger. This is longer than in the past as usually the caterpillars are decimated after a few years by natural enemies—birds, bad spring weather and a virus.

For some reason, these enemies have not been successful this time, and this has inspired the organization of the government campaigns against the caterpillars.

One campaign is planned as a cooperative venture by the state of Colorado, the Forest Service and local groups, including Walsenburg, La Veta and Cuchara Camps. They plan to spray DDT on the La Veta area about the second week in June.

Last year about 1,600 acres were covered by a similar spraying, and there seemed to be a "good kill," according to Mr. Terrell. Federal participation will determine the extent of the spraying operation. Officials are awaiting an answer from Washington on a request for \$2,000 toward the job.

The project is expected to cost from \$3,000 to \$4,000, with the federal government to pay all the cost of spraying National Forest lands and sharing the cost outside the forest.

The other project is a "pilot control" test of virus spraying and will be financed entirely by federal funds.

A collection of insects which died of the "polyhedral" virus was made by the Forest Service last fall. The insects were ground up, and the dried material containing dormant virus was stored through the winter months.

The virus material will be mixed with water about June 1 and sprayed in three general areas—around Cumbres Pass in southern Colorado, in

the Carson National Forest of New Mexico and on the Navajo Indian Reservation in northwest Arizona.

Three different mixtures of virus and water will be used in test plots in each of the three general areas. The "pilot control" project will test the various virus mixtures in the field, showing which is most effective.

In charge of this project will be Dr. C. L. Massey of the Forest Service's Albuquerque office. Providing technical advice will be Dr. C. G. Thompson of the Agriculture Research Center at Beltsville, Md., and Frank M. Yasinski and H. E. Ostmark of the Ft. Collins station. This will be the first virus spraying of the tent caterpillar.

### GRAND OPENING

SMITH CENTER, KANSAS—The Hamilton Seed and Garden Center held grand opening of its new business here for one week beginning April 10.

## Hooker, Shea Directors Approve Consolidation

NEW YORK—The boards of directors of Hooker Electrochemical Co., Niagara Falls, N.Y., and Shea Chemical Corp., New York, April 15 approved a formal agreement for the consolidation of the two companies subject to the approval of the stockholders.

### SESAME CHAMPION

BOVINA, TEXAS—Billy Marshall who farms 1,000 acres near here has been named the No. 1 sesame grower of Texas for 1957. Mr. Marshall had 400 acres in sesame, harvested nearly 400,000 lb. and made a gross profit of \$102 an acre. Sesame was introduced to Texas during the long drought, and has stayed and prospered as a cash crop. Last year farmers in Texas produced seven million pounds of seed which they sold for a total of \$717,000, or an average of 10.43¢ lb.



## Now Meet Grower Demand with GIBREL® Emulsifiable Concentrate

### New Spray Formulation—

GIBREL Emulsifiable Concentrate is the newest Merck formulation developed especially for use in foliar sprays. It contains approximately 4 Gm. potassium gibberellate per quart (0.5% active ingredient on a weight-by-weight basis).

### Economical and Easy to use—

Where a known level of treatment is needed, sprays containing GIBREL Emulsifiable Concentrate offer simplicity and economy of use. They are safe to handle, and nonphytotoxic. The Concentrate contains solvents, surfactants and expanders. It is immiscible in water and will not settle out in the spray tank, ensuring full and uniform treatment.

It may be used in aircraft and low-pressure ground spraying equipment. Suitable for use with other sprays, it is compatible with commonly used insecticides, fungicides and fertilizers.

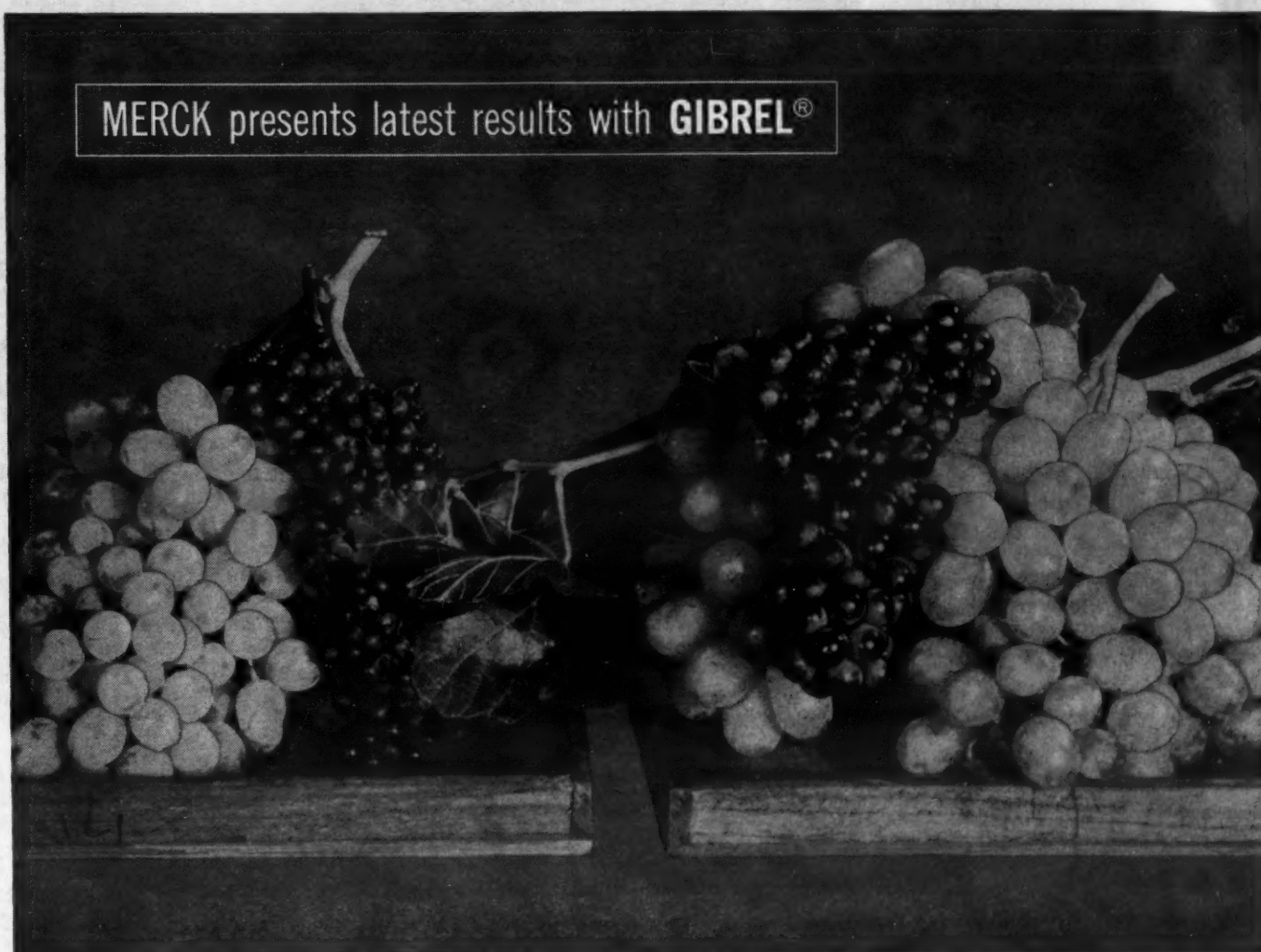
### SEND FOR MORE INFORMATION

Write, wire or phone your nearest Merck Sales Office for detailed information about GIBREL Emulsifiable Concentrate.

MERCK & CO., INC.

Sales Offices in—

Rahway • Los Angeles  
St. Louis • Atlanta • Boston  
Chicago • Minneapolis  
Philadelphia  
San Francisco



MERCK presents latest results with GIBREL®

*A premium market awaits the magnificent clusters of high-quality Thompson Seedless and Black Corinth grapes resulting from a single spray of GIBREL. Although the large treated grapes at right were grown without costly girdling, they are nearly twice the size of those at left which were produced by using traditional practices.*

# GIBREL

## Promises Higher Profits for Farmers Everywhere

The experience of California grape growers is a striking example of how GIBREL promises higher crop yields and greater profits for farmers all across the country.

Thompson Seedless and Black Corinth grapes of California are naturally small in size and yield. To market a profitable crop, growers have been compelled to employ such practices as girdling and bunch-pruning—effective but costly measures for increasing berry size and yield. Here's how GIBREL has changed the picture.

A single spray of this new growth stimulant eliminates the need for girdling, and produces a crop equal in berry size and yield to that obtained from traditional practices. Even more impressive, a heavier spray of GIBREL gives up to twice the size and yield with the same high quality (as judged by sugar and acid content), and a chance for growers to develop a premium market.

Many other crops respond to seed treatment or foliar

sprays of GIBREL. Its "vitamin-like" effect often triggers a plant's characteristic growth—promises such results as increased size and yield of many fruits and vegetables, earlier emergence for a better stand, shorter growing period, and faster early growth even in the face of adverse weather.

How practical is GIBREL for the crops you grow? Merck's extensive research program, including large-scale field trials on a wide variety of crops, is providing the answers right now. Check with your agricultural chemicals supplier for more information—and formulations of GIBREL tailored to your needs.

© Merck & Co., Inc. for its brand of gibberellin plant growth substance.



MERCK & CO., INC.  
Rahway, New Jersey

GIBREL®—a product of MERCK



# Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

## British Farmers Could Use More Fertilizer Profitably

THE extent to which British farmers are using fertilizers for production of wheat, barley, oats and other crops was outlined in a recent article appearing in the London Times. Since fertilizer is of such outstanding economic value, the Times article observes that "too many farmers, it seems, are even now not using fertilizers to the best advantage." However, most growers do employ plant food to some extent but the catch is, they could use far more and realize better profits.

A market research survey made on some 2,000 English farms showed that of farmers growing winter wheat, 81% applied inorganic fertilizer to some part of their wheat acreage in 1957. The corresponding figure for spring wheat was 77%, the survey revealed.

The Times notes further that the proportion of the acres receiving inorganic fertilizer was 83% for winter wheat and 85% for spring wheat. "Since some farmers used no fertilizer at all on the crop, the majority must have applied fertilizers to virtually the whole acreage, whether or not their wheat followed plowed in grass, potatoes, or other well-treated crops that might be considered to have left a fair amount of fertility in the soil," the paper observes.

Barley, too, is fertilized on most of the farms surveyed, with 84% stating that they used plant food on at least some of the acreages planted to barley. However, some of the applications must have been on the skimpy side, since the acreage topdressed with nitrogen was only 45% of the total spring barley acreage in 1957. This was a marked increase over the 25% recorded in 1956, the paper points out.

Comments made by British farm experts sound much like the word coming from their counterparts in the U.S.: that farmers could still use many

times the amount of fertilizer now being applied, with increasing benefits.

Well then, why don't they? Probably for the same reason that many in the U.S. fail to recognize the fact that lowering the unit of cost in producing any product affords the producer greater profit. The British don't have the problems of surplus crops as do American farmers, but the growers on both sides of the Atlantic are in business to earn a living, and the economic principle of producing more per acre on smaller areas of land holds true anywhere.

Fertilizer there, as here, is one of the most important keys to making farm operations pay.

## High Value on Weed Control

The saying that "It's more expensive to keep weeds than to control them" is well borne out in a report made before the recent Western Weed Control conference by Boysie E. Day, University of California plant pathologist. He said that weed control methods developed in the past 15 years have resulted in annual net savings of \$130,000,000 in the eleven western states.

While much of the emphasis on the value of weed control is focused on benefits to agriculture, industrial weed control is also of importance. While some of the industrial benefits are difficult to measure, Mr. Day said, there is no doubt of the over-all advantage in the control of weeds. A weed-free parking lot or clean working area has intangible value, but when it comes to reducing fire hazards through weed control, thus cutting down on the amounts of insurance premiums for the company, the value begins to take on measureable proportions.

Railroad lines and highways also benefit from weed reduction practices, to add to the total of gains from making use of modern herbicides and other means of control.

The trade this year is looking to all of these markets, agricultural and otherwise, for continuing sales of herbicides.

## SUPPORT PRICE \$1.36 . . .

## Good Prospects for Sales to Corn Growers

THE recently-announced "advance" minimum average support price on corn of \$1.36 bu. for the 1958 crop should be of considerable interest to both the fertilizer and pesticide industries. With such a guarantee to growers, they should be not only willing but eager to apply optimum amounts of plant food, and later, to protect the growing crop from the yield-reducing activities of various insect pests and weeds.

In making the advance minimum average support price, the U.S. Department of Agriculture was acting in accordance with "forward pricing" provisions of law. The price named reflects 77% of the April corn parity price, based on estimated corn supplies for the 1958-59 corn marketing year in the light of latest information and statistics available.

USDA noted that the minimum support price will not be reduced, but may be increased if a combination of the corn parity price as of Oct. 1, 1958, and corn supply relationships of that date indicates a higher support price.

With valuable crops at stake, it seems incredible that farmers should go to the expense and effort of fertilizing to get a good stand of corn, and then allow corn borers and other pests to eat the fruits of their labors. Yet, there is ample evidence that farmers are inclined to do just that.

To recall figures published earlier on this subject (Croplife, Jan. 27, 1958), Iowa farmers last year proved to be adamant toward the use of pesticides that have proved their worth against the European corn borer, principal pest of the crop. Although 88% of the Iowa corn crop in 1957

was known to be infested with this serious pest, only 7% of the farmers did anything about it. In the fall of the year, surveys showed that each corn plant was host to nearly four borers. The total loss from corn borer damage in Iowa alone is estimated by Iowa State College entomologists to be between \$70 and \$100 million.

The farmers who did treat for corn borers realized a return of about 6 million bushels of corn, or about 4 million bushels "clear profit," one entomologist declared.

Figures like these mean something, although when grouped into one big sum, their significance to the individual farmer is partly lost. Each farmer, not only in Iowa, but in every state where corn is an important crop, should be told these facts.

The economics of adequate fertilization of corn are so favorable and have been discussed so widely that it seems redundant to stress the point again. Yet, with a favorable sales climate appearing for the 1958 season, the basic story of getting larger yields from fewer acres should be told and retold over and over.

There will be more acres planted to corn this year, however. The allotment of 38,818,381 acres announced last November, compares favorably with the 37,288,889 acres planted last year. Some 932 counties in 26 states are included in the 1958 commercial corn-producing areas, while the similarly-designated areas for 1957 totaled 894 counties in 24 states.

Here's a sales challenge for both fertilizer and pesticide industries. That there will be ample material for conducting such jobs is well known; so the problem boils down to one of distribution and sales.



Croplife's Home Office

## Croplife



Member of Business Publications Audit

Member of National Business Publications

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

EDITORIAL STAFF — John Cipperly, Washington Correspondent; George E. Swarbrick, Canadian and Overseas Editor; Emmet J. Hoffman, Marketing Editor; Walter C. Smith, Research Director.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager.

BUSINESS STAFF—Martin E. Newell, Chairman of the Board of Directors; Milton B. Kihlstrum, President and Treasurer; Wilfred E. Lingren, Executive Vice President; Don E. Rogers, Vice President; Paul L. Dittmore, Vice President; Donald Neth, Secretary; Edwin J. Hartwick, Circulation Manager; James G. Patridge, Assistant Treasurer; Richard Ostlund, Office Manager; Walter O. Buchkosky, Production Superintendent.

### BRANCH OFFICES

EASTERN STATES—Paul L. Dittmore, Manager; James W. Miller and George W. Potts, Advertising Sales Representatives; Suite 3214, 551 Fifth Ave., New York 17, N.Y. (Tel. Murray Hill 2-2185).

CENTRAL STATES—Don E. Rogers, Manager; Henry S. French, Assistant Manager; 2272 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill. (Tel. Harrison 7-6782).

SOUTHWEST—Martin E. Newell, Manager; Thomas E. Letch, Assistant Manager; 612 Board of Trade Bldg., Kansas City 5, Mo. (Tel. Victor 2-1350).

NORTHWEST—Paul A. Anderson, Advertising Sales Representative, P.O. Box 67, Minneapolis 1, Minn. (Tel. Franklin 4-5200).

WASHINGTON CORRESPONDENT — John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn. Tel. Franklin 4-5200. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by

THE MILLER PUBLISHING CO.

2501 Wayzata Blvd., Minneapolis, Minn.

(Address Mail to P. O. Box 67, Minneapolis 1, Minn.)



Associated Publications—The Northwestern Miller, The American Baker, Farm Store Merchandising, Feedstuffs, Milling Production.



# MEETING MEMOS

April 23-24—Council for Agricultural & Chemurgic Research, 23rd Annual Chemurgic Conference, Congress Hotel, Chicago.

April 29—Southeastern Pasture Research Station Field Day, Coalgate, Okla.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

EDITOR'S NOTE: The listings above are appearing in the Meeting Memos for the first time this week.

April 22 — Western Agricultural Chemicals Assn., Spring Meeting, Hotel Biltmore, Los Angeles; C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., executive secretary.

April 30 — Manufacturing Chemists' Assn. Precautionary Labeling Conference, Shamrock Hotel, Houston, Texas.

May 15-23—Series of Fertilizer Meetings sponsored by the Virginia Polytechnic Institute Agricultural Extension Service; May 15 at Virginia Agricultural Experiment Station, Blacksburg; May 21 at Piedmont Research Station, Orange; May 22 at Eastern Virginia Research Station, Warsaw; May 23 at Southside Research Station, Charlotte.

May 21-24 — Western Chapter, National Shade Tree Conference, Disneyland Hotel, Anaheim, Cal., C. E. Lee, 601 W. 5th St., Los Angeles 53, Cal., secretary-treasurer.

May 22-23—Soil Science Society of North Carolina, First Annual Meeting, Williams Hall, North Carolina State College, Raleigh, N.C.

June 4—Executive Committee, Fertilizer Safety Section, National Safety Council, Hotel Roanoke, Roanoke, Va. Time: 9 a.m.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 12-14 — Manufacturing Chemists' Assn., 86th Annual Meeting, The Greenbrier, White Sulphur Springs, W.Va.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 18-19—Annual meeting, American Grassland Council, North Carolina State College, Raleigh.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

## CITRUS PEST GUIDE

WESLACO, TEXAS—The "Texas Guide for Controlling Citrus Pests" is out. Entomologists of the Texas Agricultural Experiment Station and Extension Service here and at College Station prepared the guide published as L-385. The guide covers mites, scale insects and other pests and contains paragraphs on insecticides and biological control.

## Compilation of Economics Poisons Laws Printed

NEW YORK—The seventh revision of the Compilation of Economics Poisons Laws has been published by the Chemical Specialties Manufacturers Assn. The revision contains all laws enacted and regulations issued since the last revision and brings the compilation complete to Jan. 1, 1958. A new index, tabulation of laws and lists of officials are included.

CSMA members having the membership copies of the compilation will receive their copy of the revision without charge. Additional copies of the revision will be \$5 to members and \$10 to non-members. The revision is available from Chemical Specialties Manufacturers Assn., 50 E. 41st St., New York 17, N.Y.

## Commercial Solvents Names District Managers

NEW YORK—Two appointments as district managers for Commercial Solvents Corp. were announced April 9 by James V. O'Leary, general sales manager. Walter A. Bauer was named manager of the Cleveland district office. Named to replace Mr. Bauer as manager of the St. Louis district office was Robert W. Breidenbach.

Mr. Bauer joined CSC in 1952 as an industrial chemicals salesman, and has served in Kansas City, Los Angeles and Chicago. Mr. Breidenbach came to CSC in 1948 and was assigned to the Los Angeles office. He became manager for industrial chemicals in San Francisco in 1951. In 1954 he joined the agricultural chemicals sales department as assistant to the sales manager, and in 1956 he moved to St. Louis as Midwest sales supervisor for agricultural chemicals.

## SOIL RESEARCHER

NEW HAVEN, CONN.—Brij L. Sawhney, who was born in India, has begun research as a member of the staff in soils and climatology at the Connecticut Agricultural Experiment Station, Neely Turner, vice director, has announced. Dr. Sawhney will investigate the physical chemistry of Connecticut soils.

# INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

Allied Chemical & Dye Corp., Nitrogen Division	Maas, A. R., Chemical Co.	21
American Potash & Chemical Corp.	Merck & Co.	
American Potash Institute	Meredith Publishing Co.	
Anco Manufacturing & Supply Co.	Meyer, Wilson & Geo., & Co.	
Armour Fertilizer Works	Miller Chem. & Fert. Corp.	
Ashcraft-Wilkinson Co.	Miller Publishing Co.	5
Baughman Manufacturing Co., Inc.	Monsanto Chemical Co.	
Bemis Bro. Bag Co.	National Distillers & Chemical Corp.	
Blue, John, Co.	National Potash Co.	8
Bradley & Baker	Naugatuck Chemical Div., U. S. Rubber Co.	
Broyhill Company, The	Niagara Chemical Division	
Burgess Publishing Co.	Nitrogen Div., Allied Chemical & Dye Corporation	
Chase Bag Co.	Northwest Nitro-Chemicals, Ltd.	
Chemagro Corp.	Olin Mathieson Chemical Corp.	
Chemical Eng. Serv. Div. of Manitowoc Shipbuilding, Inc.	Pacific Coast Borax Co.	
Chemical Insecticide Corp.	Penick, S. B., & Co.	4
Clover Chemical Co.	Pennsalt of Washington Div. of Pennsalt Chemical Corp.	
Collier Carbon & Chemical Corp.	Phillips Chemical Co.	2
Commercial Solvents Corp.	Potash Company of America	3
Consolidated Mining & Smelting Co.	Raymond Bag Co.	
Crown Zellerbach Corp.	Shattuck, S. W., Chemical Co.	
Dallas Tank Mfg. Co.	Shell Chemical Corp.	
Davison Chemical Co.	Simonsen Mfg. Co.	
Deere, John, & Co.	Sinclair Chemicals, Inc.	
Dempster Mill & Mfg. Co.	Smith-Douglass Co., Inc.	
Dow Chemical Co.	Smith-Rowland Co., Inc.	
E. I. du Pont de Nemours & Co., Inc.	Sohio Chemical Co.	7
Duval Sulphur & Potash Co.	Southern Nitrogen Co.	
Eastern States Petroleum & Chem. Corp.	Spencer Chemical Co.	
Emulsol Chemical Corp.	Spraying Systems Co.	
Escambia Chemical Corporation	Standard Oil Co.	
Food Machinery & Chemical Corp.	Stapan Chemical Co.	
Flexo Products, Inc.	Stewart-Warner Corp.	
Gates Rubber Co.	Suamico Eng. Corp.	
Grace Chemical Co.	Successful Farming	
Grand River Chemical Co.	Tennessee Corp.	
Harshaw Chemical Co.	Tiura Mfg. & Sales Co.	
Henderson Mfg. Co.	Union Bag-Camp Paper Corp.	
Hercules Powder Co.	U. S. Borax & Chem. Corp.	
Highway Equipment Co.	U. S. Industrial Chemicals Co.	
Hough, Frank G., Co.	U. S. Phosphoric Products Division	
International Minerals & Chemical Corp.	U. S. Potash Co.	
Johns-Manville Corp.	U. S. Rubber Co., Naugatuck Chem. Div.	
Jones, Robin, Phosphate Co.	U. S. Steel Corp.	
Kalo Inoculant Co.	Velsicol Chemical Corp.	
Kent, Percy, Bag Co.	Western Phosphates, Inc.	
Kraft Bag Corp.		

CALENDAR FOR 1958-59											
APRIL			MAY			JUNE			JULY		
S	M	T	W	T	F	S	M	T	W	T	F
1	2	3	4	5	6	1	2	3	4	5	6
7	8	9	10	11	12	7	8	9	10	11	12
13	14	15	16	17	18	13	14	15	16	17	18
19	20	21	22	23	24	19	20	21	22	23	24
25	26	27	28	29	30	25	26	27	28	29	30
31						31					
AUGUST			SEPTEMBER			OCTOBER			NOVEMBER		
1	2	3	4	5	6	1	2	3	4	5	6
7	8	9	10	11	12	7	8	9	10	11	12
13	14	15	16	17	18	13	14	15	16	17	18
19	20	21	22	23	24	19	20	21	22	23	24
25	26	27	28	29	30	25	26	27	28	29	30
31						31					
DECEMBER			JANUARY			FEBRUARY			MARCH		
1	2	3	4	5	6	1	2	3	4	5	6
7	8	9	10	11	12	7	8	9	10	11	12
13	14	15	16	17	18	13	14	15	16	17	18
19	20	21	22	23	24	19	20	21	22	23	24
25	26	27	28	29	30	25	26	27	28	29	30
31						31					



# How Hercules Helps Promote Your Service Facilities

Naturally we are interested in selling toxaphene. But we also want to assist in promoting the many unselfish service facilities now being provided by leading insecticide suppliers. That's one of the reasons why this year's Hercules advertising campaign is primarily devoted to a better understanding of insecticide usage.

More than one million farmers will be reading ads such as these in "Progressive Farmer," "Farm & Ranch," and other farm publications. In addition, local radio and television programs and the numerous dealer aids available from Hercules can help make you an even better friend of the customers you serve. It is our hope that Hercules' promotional activities will be of direct value to you.

## Questions and Answers About Cotton Insecticide Usage

**Q Is there a trend toward earlier planting?**

To some extent, but the important trend is toward early production.

**Q Aren't early planting and early production the same thing?**

Not necessarily. For example, early control of insects can be a big step toward early production even if planting is done at what you consider the regular time.

**Q Why is that?**

Anything that slows down the natural growth cycle of cotton interferes with early production. Early control of insect pests is essential to promote the vigorous, healthy growth of plants. That's why early control is an important part of any well planned insecticide program.

**Q Is it true that the more insecticide I use the more efficient my control program will be?**

No. When you use toxaphene, for example, you will find that the most economical and efficient program is based on an intelligent use of the insecticide in recommended dosages. Excessive usage is uneconomical and unnecessary.

**Q Does early production increase my profit?**

Many farmers have found that they get a better price for cotton that's produced early. Buyers appreciate that early cotton is clean, free from trash, and has better lint quality. But even more important, early production protects you from late-season insect pests.

**Q Do I need help in planning my insect control program?**

Few farmers would claim to be entomological experts. You should seek the best help you can get.

**Q Where can I get help?**

In addition to the usual sources, help is available from the best insecticide suppliers who are placing trained entomologists on their staffs to aid the farmer. Shop for this kind of service. With-out it you are getting less than you are paying for in your insecticide purchases.

**Q Is it possible to sum up the steps successful planters will be taking in 1958?**

The following, at least, will be part of their program: a regular insect control program with real guidance from the insecticide supplier; emphasis on proper use of insecticides; insistence on quality insecticide formulations; and a greater effort toward early production of cotton.

Presented in the interest of better insecticide usage by  
Agricultural Chemicals Division

**HERCULES POWDER COMPANY**  
INCORPORATED

900 Market Street, Wilmington 99, Delaware

Manufacturers of technical toxaphene

